

10/1 8 1991

FEM 1.209:0103.2 3/971

FLOOD INSURANCE STUDY



**LAUDERDALE COUNTY,
ALABAMA**
UNINCORPORATED AREAS



REVISED
MARCH 18, 1991



Federal Emergency Management Agency

COMMUNITY NUMBER - 010323

NOTICE TO
FLOOD INSURANCE STUDY USERS

• Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

• This publication incorporates revisions to the original Flood Insurance Study. These revisions are presented in Section 9.0.

TABLE OF CONTENTS

	<u>Page</u>
1.0 <u>INTRODUCTION</u>	1
1.1 Purpose of Study	1
1.2 Authority and Acknowledgments	1
1.3 Coordination	1
2.0 <u>AREA STUDIED</u>	2
2.1 Scope of Study	2
2.2 Community Description	2
2.3 Principal Flood Problems	5
2.4 Flood Protection Measures	6
3.0 <u>ENGINEERING METHODS</u>	6
3.1 Hydrologic Analyses	6
3.2 Hydraulic Analyses	10
4.0 <u>FLOODPLAIN MANAGEMENT APPLICATIONS</u>	11
4.1 Flood Boundaries	11
4.2 Floodways	11
5.0 <u>INSURANCE APPLICATION</u>	17
5.1 Reach Determinations	18
5.2 Flood Hazard Factors	18
5.3 Flood Insurance Zones	19
5.4 Flood Insurance Rate Map Description	19

TABLE OF CONTENTS (continued)

	<u>Page</u>
6.0 <u>OTHER STUDIES</u>	22
7.0 <u>LOCATION OF DATA</u>	22
8.0 <u>BIBLIOGRAPHY AND REFERENCES</u>	23
9.0 <u>REVISIONS DESCRIPTION</u>	25
9.1 First Revision (Revised March 18, 1991)	25
a. Acknowledgments	25
b. Scope	25
c. Hydrologic and Hydraulic Analyses	25
d. Floodways	28
e. Flood Insurance Zones	29
f. Other Studies	29
g. References and Bibliography	29

FIGURES

Figure	1	-	Vicinity Map	3
Figure	2	-	Floodway Schematic	17

TABLES

Table	1	-	Stream Gages	7
Table	2	-	Summary of Discharges	9
Table	3	-	Floodway Data	13
Table	4	-	Flood Insurance Zone Data	20
Table	5	-	Stream Gages for Discharge-Frequency Relationships	26
Table	6	-	Stream Gages for Elevation-Frequency Relationships	27
Table	7	-	Revised Summary of Discharges	27

TABLE OF CONTENTS (continued)

EXHIBITS

Flood Profiles

Wilson Creek	Panel 01P
Huddon Creek	Panel 02P
Anderson Creek	Panels 03P-04P
East Fork Anderson Creek	Panel 05P
Cypress Creek	Panels 06P-07P
Little Cypress Creek	Panels 08P-09P
Indiancamp Creek	Panel 10P
Tennessee River (Pickwick Lake)	Panel 11P
Bluewater Creek	Panel 12P
Tennessee River (Wilson Lake)	Panels 13P-14P
Shoal Creek	Panels 15P-17P

Flood Boundary and Floodway Map Index
Flood Boundary and Floodway Map

PUBLISHED SEPARATELY:

Flood Insurance Rate Map Index
Flood Insurance Rate Map

FLOOD INSURANCE STUDY LAUDERDALE COUNTY, ALABAMA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the unincorporated areas of Lauderdale County, Alabama, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert Lauderdale County to the regular program of flood insurance by the Federal Insurance Administration (FIA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 24 CFR, 1910.1 (d). In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgments

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the Tennessee Valley Authority for the Federal Insurance Administration, under Interagency Agreement No. IAA-H-15-78, Project Order No. 1. This study was completed in April 1979.

1.3 Coordination

Streams requiring detailed or approximate study were identified at a meeting attended by representatives of Tennessee Valley Authority (TVA), FIA, and representatives of Lauderdale County on January 9, 1978.

On March 12, 1980, the results of the study were reviewed at the final meeting attended by representatives of TVA, FIA, and community officials. The study was acceptable to the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated area of Lauderdale County, Alabama. The area of study is shown on the Vicinity Map (Figure 1).

The limits of detailed and approximate studies in Lauderdale County were determined by FIA with community and TVA consultation at the meeting in January 1978.

The following streams were studied in detail:

<u>Stream</u>	<u>Mile</u>
Wilson Creek	0.27 - 0.84
Hudson Creek	0.24 - 0.78
Anderson Creek	10.67-11.05; 12.75-12.92
East Fork Anderson Creek	0.36 - 1.38
Cypress Creek	8.75 - 12.78
Little Cypress Creek	0.00 - 2.74
Shoal Creek	9.39 - 11.83
Indiencamp Creek	0.00 - 1.40
Tennessee River	254.80 - 260.00

There are a number of streams within the county that have low development potential, and therefore, are studied by approximate methods. The approximate flooded areas are the same as shown on the published Flood Hazard Boundary Map (FHBM) dated March 31, 1978.

2.2 Community Description

Lauderdale County is situated in the northwestern part of the state, bordering the State of Tennessee to the north and the State of Mississippi to the west. In 1970, the county population was 68,111, up 10.5 percent from 61,622 in 1960 (Reference 1). The July 1, 1976, population was 74,400, up 9.2 percent since 1970 (Reference 2). The total land area of the county is 662 square miles.

Florence is the county seat and the largest city with an estimated 1975 population of 34,402. Rogersville is the second largest city with 1,086 persons in 1975 (Reference 2).

The 1978 assessed valuation of Lauderdale County property was \$122,703,975. According to the 1972 Census of Business, there were 685 retail establishments in the county reporting annual sales of \$134,701,000 (Reference 3).

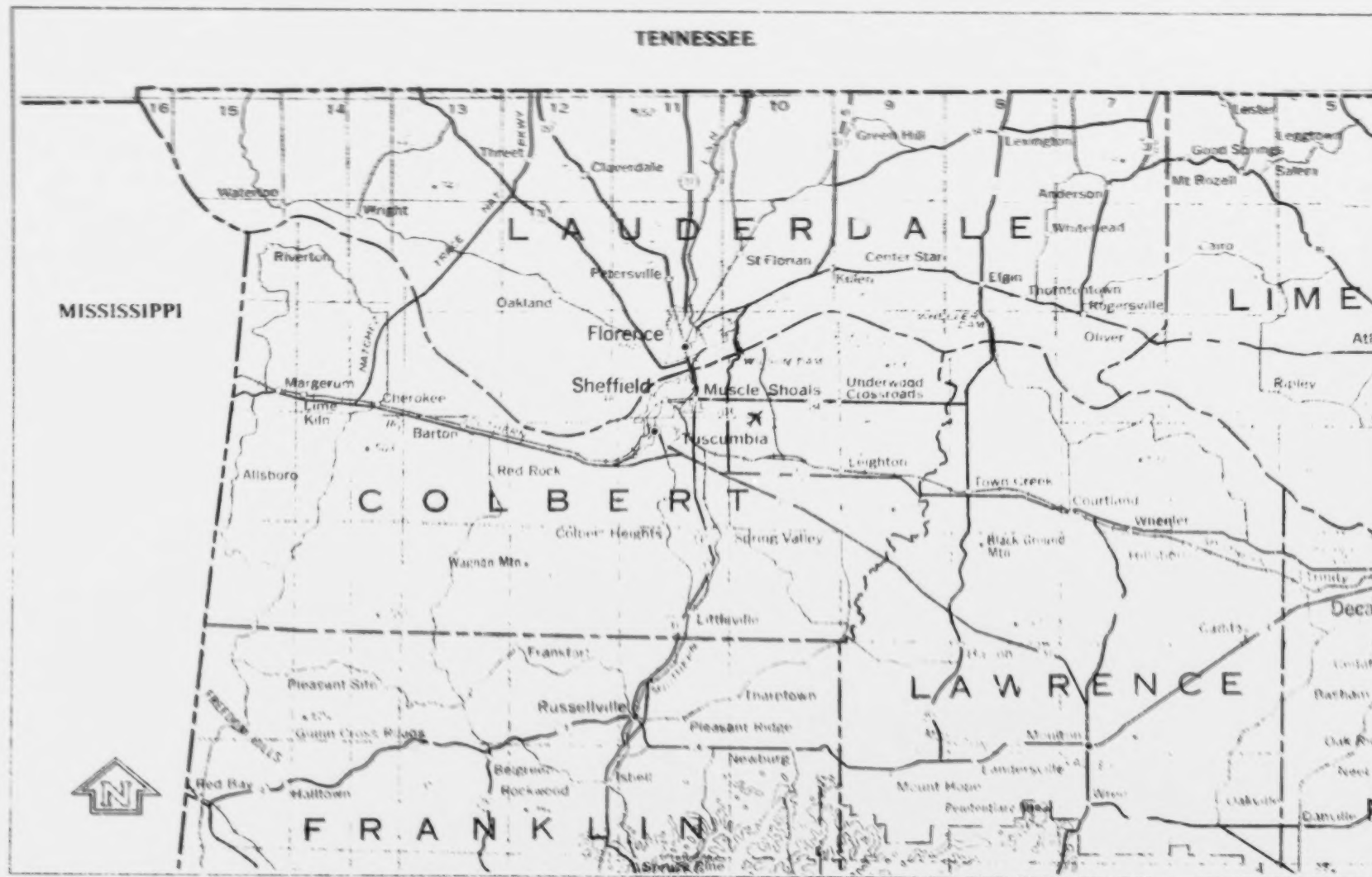


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL

(UNINCORPORATED AREAS)

APPROXIMATE SCALE



VICINITY MAP

3

In 1976, there were 75 manufacturing firms in Lauderdale County, employing approximately 3,900 workers with annual payroll close to \$29 million.

The first permanent settlers came to Lauderdale County between 1805 and 1815. Large tracts of land were ceded to the Federal Government by the Cherokee Indians in 1806 and by the Chickasaws in 1816.

On February 6, 1818, the county of Lauderdale was created by an Act of the Alabama Territorial Legislature. It was named in honor of Colonel James Lauderdale, who had served under General Andrew Jackson (Reference 4).

Transportation was often difficult for the early settlers of Lauderdale County. Some came on flatboats from the headwaters of the Tennessee River, but most came by the Old Military Highway that passed through Florence between New Orleans and Chicago. Ferry boats were used on the Tennessee River extensively until replaced by railroads. Since 1933, the Tennessee River has again become a major artery of transportation because of a 12-foot navigation channel built by the Tennessee Valley Authority (Reference 4).

Agricultural and industrial development in Lauderdale County is aided by an extensive network of good Federal, State, and County highways.

Passenger service is maintained by three bus lines connecting Florence with Athens, Decatur, Birmingham, Sheffield, Memphis, and Nashville. Two railroads and two airlines serve the area. The Tennessee River has a navigation channel 12 feet deep that ensures water transportation between Lauderdale County and inland ports on the Mississippi, Missouri, Ohio, and Tennessee Rivers.

Important industries in Lauderdale County are cotton mills, plants manufacturing heaters and stoves, swimming pools, and dairy and meat products. Industrial expansion can be attributed to surrounding market areas, economical electrical power, and abundant manpower (Reference 4).

The general slope of the county is southward. Elevation ranges from about 414 feet National Geodetic Vertical Datum of 1929 (NGVD), near the confluence of Cypress Creek and the Tennessee River, to about 900 feet NGVD, about 1½ miles north of Murphy's Chapel Church near the state line. Most of the county is 500-800 feet NGVD.

The Tennessee and Elk Rivers are the major streams in the county. The Elk River empties into the Tennessee in the southeastern part of the county. Cypress, Shoal, Anderson, Second, and Bluewater are some of the larger creeks. Most of them flow generally in a southerly direction and empty into the Tennessee River, but Anderson Creek empties into the Elk River (Reference 4). Western Lauderdale County is drained by Bumpas, Second, Panther, and Cedar Creeks (Reference 4).

Lauderdale County has a temperate climate. The average annual precipitation is 51.67 inches and the average annual temperature is 60.0 degrees F. Rainfall constitutes nearly all precipitation; snow falls about twice a year but seldom remains on the ground for more than 2 days. The highest average monthly precipitation, 5.70 inches, occurs in March and the lowest, 2.85 inches, in September. The highest average monthly temperature, 79.6 degrees F, occurs in July and the lowest, 41.9 degrees F in January. Freezing temperatures commonly do not last more than 2 consecutive days (Reference 4).

2.3 Principal Flood Problems

The principal sources of flooding in Lauderdale County, Alabama, are Cypress, Shoal, Huddon, Wilson, Anderson, East Fork Anderson, Little Cypress, and Indiancamp Creeks.

On Cypress Creek, the largest flood since 1902 was that of March 1955. At the United States Geological Survey (USGS) gage at mile 4.1, the peak discharge was 38,000 cubic feet per second (cfs) and reached elevation 453.7 feet NGVD with an estimated recurrence interval of 100 years. Several houses were flooded and all major bridge crossings were overtopped (Reference 5). The second highest known flood on Cypress Creek occurred in 1902. No discharge estimate is available, but near the mouth of Cox Creek the flood crested 4-5 feet lower than the 1955 flood (Reference 6). The largest flood in recent years occurred on March 16, 1973. At the gage the peak discharge was 27,000 cfs with a crest elevation of 443.9 feet NGVD and an estimated recurrence interval of 20 years. Several homes were flooded (Reference 7). An extensive erosion control and flood prevention project for the Cypress Creek watershed has been planned and authorized by the Soil Conservation Service (SCS). The project includes 19 flood detention dams and 14.4 miles of channel work. This study does not reflect the effects of the project as construction has not started.

The greatest flood known on Shoal Creek occurred on March 28, 1902. No discharge estimate is available. The second largest flood was the March 1955 flood. At the gage at Iron City, Tennessee, 10 miles above the study limit, the flood crested with a discharge of 132,000 cfs and an estimated recurrence interval of 400 years. Several houses, a handle factory, and a sawmill were flooded (Reference 5).

No historic information is available on Huddon Creek, Wilson Creek, Anderson Creek, East Fork Anderson Creek, Little Cypress Creek, and Indian-camp Creek.

2.4 Flood Protection Measures

The TVA upstream reservoirs on the Tennessee and Elk Rivers have substantially reduced flood heights along these streams and also the flood heights resulting from main stream backwater at the mouths of Cypress and Shoal Creeks.

There are no other funded flood protection projects planned for Lauderdale County.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, and 500-year period (recurrence intervals), have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one percent chance of annual occurrence) in any 50 year period is about 40 percent (four in 10), and for any 90 year period, the risk increases to about 60 percent (six in 10). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail in the community.

For Cypress Creek and Shoal Creek, flood flow frequency data were based on statistical analyses of discharge records of USGS gaging stations. The stream gage on Cypress Creek near Florence, Alabama, (No. 03590000) was maintained from 1934 to 1953; limited historical data going back to 1890 further supported these records. The gage on Shoal Creek at Iron City, Tennessee (No. 03538500) located 10 miles upstream of the study reach was operated from 1925 to the present. This analysis was made using the procedure outlined in Bulletin 17A (Reference 8) including the skew maps, plate 1, and adjustment for available historic flood information.

No formal stream gaging stations have been maintained on the other streams studied. Discharge-frequency relationships for these streams were estimated using relationships of peak discharge and drainage area developed from analyses of records at nearby gaging stations listed in Table 1- Stream Gages. Frequency curves for the gaged locations used to define regional relationships were computed using the procedure outlines in Bulletin 17A (Reference 8), including the skew map on plate 1, and adjustments for historic flood information where available.

TABLE 1. STREAM GAGES

<u>Stream</u>	<u>Gage Number</u>	<u>Drainage Area (sq. Miles)</u>	<u>Period of Record</u>	<u>Agency</u>
Vest Creek near Baldwin, Alabama	02451750	1.64	1964-1972	USGS
Big Huckleberry Creek near Belvedere, Tennessee	03574700	2.18	1955-1974	USGS
Flat Branch near Jasper, Alabama	02045340	2.47	1958-1969	USGS
Weakly Creek near Rover, Tennessee	0359820	9.46	1955-1977	USGS
Dorsey Creek near Arkadelphia, Alabama	02450200	13.0	1959-1974	USGS
Big Bigby Creek at Sandy Hook, Tennessee	03060050	17.5	1953-1976	USGS
Weakly Creek near Bodenham, Tennessee	03583500	24.4	1955-1968	USGS
Bear Creek at Posey Mill, Alabama	03591700	26.8	1964-1975	USGS

W. F. Mulberry Creek at Mulberry, Tennessee	03581500	41.2	1954-1976	USGS
Bradley Creek at Prairie Plains, Tennessee	03578500	41.3	1952-1976	USGS
Piney Creek near Athens, Alabama	03576400	55.8	1960-1970	USGS
Elk River near Pelham, Tennessee	03578000	65.6	1952-1976	USGS
Little Bear Creek near Halltown, Alabama	03592300	78.2	1958-1976	USGS
Flint Creek near Falk- ville, Alabama	03576500	86.3	1953-1973	USGS
Limestone Creek near Athens, Alabama	03576250	119	1940-1966 1966-1976	TVA USGS
Bear Creek near Hackleburg, Alabama	032572900	143	1957-1976	USGS
Town Creek near Geraldine, Alabama	03591800	141	1958-1976	USGS
Paint Rock River near Woodville, Alabama	03574500	320	1936-1976	USGS
Flint River near Chase, Alabama	03575000	342	1929-1977	USGS
Cypress Creek near Florence, Alabama	03590000	209	1934-1953	USGS
Shoal Creek above Little Shoal Creek at Lawrence- burg, Tennessee	03587500	27.0	1955-1977	USGS
Shoal Creek at Lawrence- burg, Tennessee	03588000	55.4	1968-1977	USGS
Shoal Creek at Iron City, Tennessee	03588500	348	1925-1976	USGS

Sources of information in Table I are References 9, 10, and 11.

The adopted flow estimates were compared with results obtained using applicable USGS relationships. USGS flow estimates were 15 percent to 50 percent smaller than the adopted estimates. The difference results from limiting the analysis to records for similar watersheds in the region including those in Tennessee. The USGS equations are based upon gage records for the entire State of Alabama; thus, regional differences are masked.

The peak discharge-drainage area relationships for the selected recurrence intervals are presented in Table 2, "Summary of Discharges."

TABLE 2 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
WILSON CREEK					
At mouth	3.63	1,950	2,500	2,800	3,900
River mile 0.84	3.22	1,800	2,300	2,600	3,600
HUDDON CREEK					
At mouth	2.23	1,450	1,850	2,000	2,800
River mile 0.80	2.05	1,400	1,700	1,900	2,700
ANDERSON CREEK					
River mile 10.70	24.9	6,100	8,300	10,000	13,500
River mile 13.00	15.2	4,600	5,900	7,100	9,900
EAST FORK ANDERSON CREEK					
At mouth	7.43	3,000	3,600	4,500	6,200
River mile 1.40	5.60	2,500	2,900	3,800	5,200
CYPRESS CREEK					
Just downstream of confluence of Little Cypress Creek	189	20,000	32,000	37,000	52,000
Just upstream of confluence of Little Cypress Creek	133	17,000	26,000	30,000	41,500
LITTLE CYPRESS CREEK					
At mouth	51.1	9,200	14,000	16,000	22,000
River mile 2.70	47.7	9,000	13,000	15,000	21,000
SHOAL CREEK					
River mile 9.39	460	52,700	93,100	114,000	174,000
River mile 11.90	447	51,600	91,200	112,000	170,000
INDIANCAMP CREEK					
At mouth	8.22	3,200	3,900	4,800	6,600
River mile 1.40	7.94	3,100	3,800	4,700	6,500
TENNESSEE RIVER					
River Mile 256.60	30,810	370,000	430,000	452,000	510,000

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the flooding sources studied in detail in the community were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the flood sources.

Cross sections for all streams studied in detail were field surveyed at bridges and other strategic locations and supplemented with valley cross sections taken by photogrammetric methods at sufficiently close intervals to accurately compute surface elevations. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway is computed (Section 4.2), selected cross section locations are also shown on the Flood Boundary and Floodway Map (Exhibit 3).

Channel roughness factors (Manning's "n") for these computations were determined on the basis of field inspection of channel and floodplain areas, on previous studies by TVA, and computed coefficients based on known flood profiles.

The range in values for Manning's "n" is tabulated below:

<u>Stream</u>	<u>Channel</u>	<u>Overbank</u>
Wilson Creek	0.030-0.045	0.060-0.150
Hudson Creek	0.030-0.050	0.080-0.140
Anderson Creek	0.030-0.055	0.080-0.150
East Fork Anderson Creek	0.030-0.050	0.070-0.150
Cypress Creek	0.030-0.050	0.070-0.150
Little Cypress Creek	0.035-0.050	0.090-0.150
Shoal Creek	0.030-0.050	0.090-0.150
Indiancamp Creek	0.028-0.045	0.110-0.150

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals (Exhibit 1). Water-surface elevations of floods for the selected recurrence intervals were computed through use of the COE HEC-2N step-backwater computer program (Reference 12). Starting water-surface elevations for flood frequency profiles on Anderson, East Fork Anderson, Wilson, and Hudson Creeks were obtained by slope-area calculations using stream bed slope. Indiancamp and Little Cypress Creeks starting water-surface elevations were obtained by slope area calculations using the slope of the 1978 floodmarks. Flood frequency profile elevations from the Florence, Alabama, FIS (Reference 13), were used as starting water-surface elevations for Cypress Creek. Starting water-surface elevations for Shoal Creek were set using the slope of the stream bed, known floods, and Wilson Dam headwater elevations.

All elevations are measured from NGVD; elevation reference marks used in the study are shown and described on the maps.

The flood elevations as shown on the profiles are considered valid only if hydraulic structures in general remain unobstructed, operate properly, and do not fail.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FIA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100- and the 500-year floods have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using photogrammetric methods on enlarged 7.5-minute series topographic maps at a scale of 1" = 500' (References 14 and 15). In cases where the 100- and the 500-year flood boundaries are close together, only the 100-year boundary has been shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights. Minimum standards of the FIA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this report are presented to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

The floodways presented in this study are based on the 100-year flood criteria and were computed with procedures used by TVA for many years to provide technical flood plain management assistance to Tennessee Valley communities. In this procedure the floodway limit lines are located to allow use of some presently flood prone areas at the expense of some increase in flood levels. The limit lines are located in a manner which provides land where it is estimated to serve the community's needs best. The results of these computations are tabulated at selected cross sections for the streams studied in detail (Table 3).

As shown on the Flood Boundary and Floodway Map (Exhibit 3), the floodway boundaries were determined at cross sections; between cross sections the boundaries were interpolated.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
Wilson Creek								
A	0.44	90	277	9.8	561.0	561.0	561.0	0.0
B	0.61	220	1,706	1.6	569.6	569.6	570.5	0.9
C	0.84	160	899	2.9	569.9	569.9	570.7	0.8
Huddon Creek								
A	0.24	190	948	2.1	557.2	557.2	558.0	0.8
B	0.56	60	204	9.4	568.2	568.2	568.2	0.0
C	0.78	35	168	11.3	578.0	578.0	578.6	0.6
Anderson Creek								
A	10.67	150	1,772	5.6	648.7	648.7	649.7	1.0
B	10.99	160	2,144	4.6	652.0	652.0	652.8	0.8
C	12.92	220	2,271	3.1	677.0	677.0	677.7	0.7
East Fork Anderson Creek								
A	0.70	190	891	4.7	685.7	685.7	686.5	0.8
B	1.06	140	941	4.2	695.4	695.4	696.0	0.6
C	1.38	370	2,369	1.6	703.3	703.3	704.2	0.9
Cypress Creek								
A	9.34	325	4,048	9.1	476.7	476.7	477.6	0.9

¹Miles above mouth

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

FLOODWAY DATA

13
WILSON CREEK-HUDDON CREEK-ANDERSON CREEK
EAST FORK ANDERSON CREEK-CYPRESS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
CYPRESS CREEK (CONT.)								
	B							
	10.15	1390	18,336	2.0				
	10.90	660	7700	3.9	483.2	483.2		
	11.48	600	7869	3.8	485.7	485.7	483.8	0.6
	12.04	560	7345	4.1	489.3	489.3	486.5	0.8
LITTLE CYPRESS CREEK	12.31	1250	12,876	2.3	493.6	493.6	490.1	0.8
	12.78	700	5974	5.0	495.8	495.8	494.5	0.9
					497.7	497.7	496.7	0.9
							498.5	0.8
A	0.25	1080	7552	2.1				
	0.70	220	1917	8.2	483.3	479.9 ²	480.9	1.0
	1.30	570	5427	2.9	483.6	483.6	484.2	0.6
	1.77	210	2640	5.8	491.8	491.8	492.8	1.0
	2.04	380	4023	3.8	494.8	494.8	495.7	0.9
	2.35	730	5368	2.9	496.9	496.9	497.8	0.9
G	2.74	1200	7919	1.9	497.8	497.8	498.8	1.0
					499.5	499.5	500.5	1.0

¹MILES ABOVE MOUTH

²ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM CYPRESS CREEK

REVISED: 3/18/91

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

FLOODWAY DATA

CYPRESS CREEK—LITTLE CYPRESS CREEK

14

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
INDIANCAMP CREEK								
A	0.03	160	1486	3.2	519.2	511.8 ²	512.8	1.0
B	0.28	330	2042	2.3	519.2	513.0 ²	513.7	0.7
C	0.61	120	604	7.9	519.2	517.1 ²	517.7	0.6
D	0.95	60	585	8.1	527.3	527.3	527.3	0.0
E	1.40	90	717	6.6	533.9	533.9	534.5	0.6
BLUEWATER CREEK								
A	0.10	780	6087	5.3	508.7	508.0 ³	508.0	0.0
B	0.59	370	4232	7.5	509.5	509.5	509.5	0.0
C	1.02	280	3997	7.9	511.0	511.0	511.0	0.0
D	1.40	300	4464	7.0	512.3	512.3	512.3	0.0
E	1.97	535	6204	5.0	514.2	514.2	514.2	0.0
F	2.45	285	3890	7.9	515.3	515.3	515.3	0.0
G	3.02	240	3426	8.9	517.3	517.3	517.8	0.5
H	3.41	400	5386	5.7	519.9	519.9	520.8	0.9
I	4.02	470	5359	5.6	522.4	522.4	523.2	0.8
J	4.45	335	3648	8.2	525.6	525.6	526.6	1.0
K	4.90	135	2851	10.5	531.2	531.2	532.2	1.0

¹MILES ABOVE MOUTH

²ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM SHOAL CREEK

³ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM TENNESSEE RIVER

REVISED 3/18/91

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

FLOODWAY DATA

INDIANCAMP CREEK—BLUEWATER CREEK

15-

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
SHOAL CREEK								
A	0.16	1835	61,168	2.0	508.0	507.0 ²	507.0	0.0
B	0.67	980	41,004	2.9	508.0	507.0 ²	507.0	0.0
C	1.37	860	29,738	4.0	508.0	507.0 ²	507.0	0.0
D	1.93	1575	37,403	3.2	508.0	507.1 ²	507.1	0.0
E	2.46	920	26,478	4.5	508.0	507.1 ²	507.1	0.0
F	2.99	690	18,255	6.5	508.0	507.1 ²	507.1	0.0
G	3.63	640	16,087	7.4	508.0	507.4 ²	507.4	0.0
H	4.18	670	13,522	8.7	508.0	507.4 ²	507.8	0.0
I	4.96	1110	19,438	6.0	509.1	509.1	509.1	0.0
J	5.53	1120	20,788	5.6	509.6	509.6	509.6	0.0
K	5.94	1110	14,299	8.2	509.6	509.6	509.6	0.0
L	7.11	1300	18,409	6.3	511.7	511.7	511.7	0.0
M	7.71	440	7496	15.4	511.7	511.7	511.7	0.0
N	8.27	380	9219	12.5	515.7	515.7	515.7	0.0
O	8.89	540	11,561	9.9	517.3	517.3	517.3	0.0
P	9.39	370	9100	12.5	518.1	518.1	518.1	0.0
Q	9.84	420	12,446	9.0	519.6	519.6	520.3	0.7
R	10.19	440	8904	12.6	519.9	519.9	520.4	0.5
S	10.51	340	8479	13.2	521.4	521.4	522.3	0.9
T	11.11	380	10,240	10.9	525.4	525.4	526.4	1.0
U	11.83	300	8169	13.7	527.9	527.9	528.8	0.9

¹MILES ABOVE MOUTH

²ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM TENNESSEE RIVER

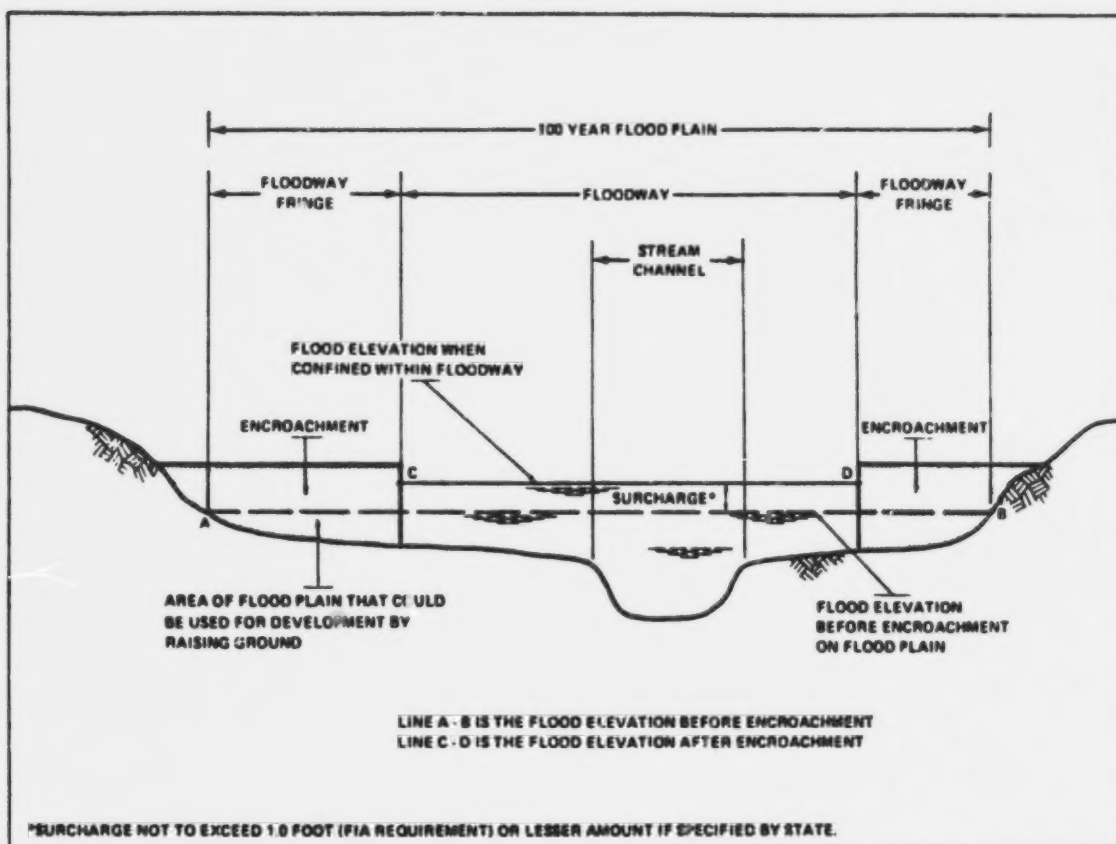
TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

FLOODWAY DATA

SHOAL CREEK



FLOODWAY SCHEMATIC

Figure 2

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FIA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHF's), and flood insurance zone designations for each significant flooding source affecting Lauderdale County.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

<u>Average Difference Between 10- and 100-Year Floods</u>	<u>Variation</u>
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet

Fifteen reaches meeting the above criteria were required for the unincorporated areas of Lauderdale County. These include four on Cypress Creek, two each on Wilson, Anderson, and Shoal Creeks, and one each on Huddon, East Fork Anderson, Indiancamp, and Little Cypress Creeks, and Tennessee Creek. The Locations of the reaches are shown on the Flood Profiles (Exhibit 1).

5.2 Flood Hazard Factors (FHF)

The Flood Hazard Factor is used to correlate flood information with insurance rate tables. Correlations between property damages from floods and their assigned FHF are used to set actuarial insurance premium rate tables based on FHF from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest one-half foot, and shown as a three-digit code. For example, if the difference between the water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year flood water-surface elevations is greater than 10.0 feet, the accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHF's, the entire unincorporated area of Lauderdale County was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations.

Zone A:	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations shown or FHF's determined.
Zones A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A13, A14, A16:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF's.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; or areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 4, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHF's, flood insurance zones, and base flood elevation for each flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for Lauderdale County is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FIA.

FLOODING SOURCE	PANEL ¹	ELEVATION DIFFERENCE ² BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION ³ (NGVD)
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Wilson Creek							
Reach 1	0156	-2.0	-0.3	+0.8	020	A4	Varies
Reach 2	0156	-1.2	-0.3	+0.8	010	A2	Varies
Huddon Creek							
Reach 1	0156	-0.7	-0.3	+0.7	005	A1	Varies
Anderson Creek							
Reach 1	0114	-3.1	-1.3	+2.2	030	A6	Varies
Reach 2	0112	-2.6	-1.0	+1.8	025	A5	Varies
East Fork Anderson Creek							
Reach 1	0112	-1.2	-0.8	+0.9	010	A2	Varies
Cypress Creek							
Reach 1	0154	-6.8	-1.9	+4.5	070	A14	Varies
Reach 2	0154	-4.5	-1.2	+3.4	045	A9	Varies
Reach 3	0153,0154	-4.8	-1.3	+3.4	050	A10	Varies
Reach 4	0151,0153	-3.9	-1.1	+3.0	040	A8	Varies

¹FLOOD INSURANCE RATE MAP PANEL

²WEIGHTED AVERAGE

³ROUNDED TO NEAREST FOOT - SEE MAP

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL

(UNINCORPORATED AREAS)

FLOOD INSURANCE ZONE DATA

WILSON CREEK - HUDDON CREEK - ANDERSON CREEK
EAST FORK ANDERSON CREEK - CYPRESS CREEK

20

FLOODING SOURCE	PANEL ¹	ELEVATION DIFFERENCE ² BETWEEN 1.0% (100-YEAR) FLOOD AND			FLOOD HAZARD FACTOR	ZONE	BASE FLOOD ELEVATION ³ (FEET NGVD)
		10% (10-YEAR)	2% (50-YEAR)	0.2% (500-YEAR)			
LITTLE CYPRESS CREEK							
REACH 1	0152,0154	-2.8	-0.8	2.5	030	A6	VARIES—SEE MAP
SHOAL CREEK							
REACH 1	0065,0069,0157 0180	-3.0	-1.0	3.1	030	A6	VARIES—SEE MAP
REACH 2	0067,0069	-7.1	-2.4	6.9	070	A14	VARIES—SEE MAP
REACH 3	0067	-8.8	-2.6	6.8	090	A18	VARIES—SEE MAP
INDIANCAMP CREEK							
REACH 1	0066,0068	-1.5	-0.7	4.9	015	A3	VARIES—SEE MAP
REACH 2	0066	-2.1	-1.1	2.2	020	A4	VARIES—SEE MAP
TENNESSEE RIVER							
REACH 1	0165	-3.3	-1.0	2.0	035	A7	VARIES—SEE MAP
REACH 2	0159,0170,0180 0195	-0.0	-0.0	0.0	005	A1	VARIES—SEE MAP
BLUEWATER CREEK							
REACH 1	0185,0195	-4.1	-1.1	2.5	040	A8	VARIES—SEE MAP

¹FLOOD INSURANCE RATE MAP PANEL

²WEIGHTED AVERAGE

³ROUNDED TO NEAREST FOOT

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

FLOOD INSURANCE ZONE DATA

LITTLE CYPRESS CREEK—SHOAL CREEK—INDIANCAMP CREEK—
TENNESSEE RIVER—BLUEWATER CREEK

REVISED: 3/18/91

6.0 OTHER STUDIES

The SCS has under consideration a system of small detention dams and channel improvements for the tributaries of Cypress Creek north of Florence (Reference 16). The primary purpose of the system is to retard tributary flooding in Lauderdale County. As of April 1979, Congress has approved but not released funds pending the results of an endangered species study. The project effects are not included in this FIS.

The previously published Florence, Alabama FIS and its current draft form extension covering annexed area in the north are in complete agreement with this FIS.

The incorporated area of Anderson, Alabama is currently being studied and coordinated with this FIS.

This study is authoritative for the purposes of the Flood Insurance Program and the data presented here either supersede or are compatible with previous determinations.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic, and other pertinent data used in this study can be obtained by contacting the Insurance and Mitigation Division, Federal Emergency Management Agency, 1375 Peachtree Street, N.E., Atlanta, Georgia 30309.

8.0 BIBLIOGRAPHY AND REFERENCES

1. U.S. Bureau of the Census, Census of Population, 1970, Characteristics of the Population, by State and U.S. Summary.
2. U.S. Bureau of the Census, Current Population Reports, Population Estimates and Projections, Series P-25, by State.
3. U.S. Bureau of the Census, Census of Retail Trade, 1972, Area Series, by State.
4. Geological Survey of Alabama, "Geology and Ground Water Resources of Lauderdale County, Alabama," by H.B. Harris, R.R. Peace, Jr., and W.F. Harris, Jr., County Report 3, 1963.
5. TVA, "Floods of March 1955, in Western Part of Tennessee River Basin," Division of Water Control Planning, Hydraulic Data Branch, Knoxville, Tennessee, July 1955 and August 1961.
6. TVA, "Floods on Tennessee River and Cypress and Cox Creeks in Vicinity of Florence, Alabama," Report No. 0-5657, Division of Water Control Planning, Hydraulic Data Branch, Knoxville, Tennessee, May 1956.
7. TVA, "Floods of March 1973, in the Tennessee River Basin," Report No. 0-7129, Division of Water Control Planning, Knoxville, Tennessee, June 1974.
8. Water Resources Council, "Guidelines for Determining Flood Flow Frequency," Bulletin 17A, June 1977.
9. Speer, Paul R., and Gamble, Charles R., "Magnitude and Frequency of Floods in the United States," Part 3-B, Cumberland and Tennessee River Basins, U.S. Geological Survey, Water Supply Paper 1676, 1974.
10. U.S. Geological Survey "Water-Surface Supply of the U.S., 1961-65." U.S. Geological Survey Water Supply Paper 1910, Part 3, Vol. 4, "Ohio River Basin below Wabash River," 1971.
11. U.S. Geological Survey "Water-Surface Supply of the United States, 1966-70." U.S. Geological Survey Water Supply Paper 2110, Part 3, Vol. 4, "Ohio River Basin below Wabash River," 1973.
12. U.S. Army, Corps of Engineers, Hydrologic Engineering Center, HEC-2N Water-Surface Profiles, TVA modified version of the Generalized Computer Program, Davis, California, August 1977.
13. Flood Insurance Study, City of Florence, Alabama, Lauderdale County, November 1976, U.S. Department of Housing and Urban Development, Federal Insurance Administration.

14. U.S. Geological Survey 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval of 20 feet: Pruitton 1952 (Revised 1972), Lexington 1952 (Revised 1972).
15. U.S. Geological Survey 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval of 10 feet; Florence 1971.
16. Cypress Creek Watershed Conservancy, District Three Cypress Creek Watershed District, Watershed Work Plan Cypress Creek Watershed, Lauderdale County, Alabama, and Wayne County, Tennessee, University of North Alabama, Florence, Alabama, January 1976.

U.S. Geological Survey, "Water Resource Data for Alabama," U.S. Geological Survey Water Supply Paper's Annual Reports, Water Years 1971-75 and 1957-60," 1976.

U.S. Geological Survey, "Flood Frequency of Small Streams in Alabama," Alabama Highway Research, August 1977.

Tennessee Valley Authority, "Daily Discharges at TVA Stream Gages in the Tennessee River Basin," 1940-1975 Reports.

9.0 REVISIONS DESCRIPTION

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study was printed. Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood hazard data located at the County Courthouse, Room 303, 200 South Court Street, Florence, Alabama.

9.1 First Revision (Revised March 18, 1991)

a. Acknowledgments

The hydrologic and hydraulic analyses for this Revisions Description were performed by the Tennessee Valley Authority (TVA). The Federal Emergency Management Agency (FEMA) reviewed and accepted these data for purposes of this revision.

b. Scope

The floodplain boundaries, base flood elevations, zone designations, and floodway were revised along Shoal Creek from its confluence with the Tennessee River to approximately 2.7 miles upstream of County Highway 47. The base flood elevations for Indiancamp Creek were revised based on revised backwater elevations for Shoal Creek. The floodway and floodplain boundaries were revised along Indiancamp Creek from its confluence with Shoal Creek upstream to a point about 0.5 mile upstream of County Road. The floodplain boundaries and zone designations were revised along Bluewater Creek from its confluence with the Tennessee River to approximately 1.5 miles downstream of U.S. Highway 72. Base flood elevations and a floodway were added along the revised portion of Bluewater Creek. Base flood elevations were added for the Tennessee River from River Mile 259 upstream to approximately River Mile 275.

c. Hydrologic and Hydraulic Analyses

The U.S. Geological Survey (USGS) gaging station at Iron City, Tennessee was the principal source of data defining peak discharge-frequency relationships on Shoal Creek. The hydrology for Indiancamp Creek was not revised. Due to the lack of stream gage records on Bluewater Creek, peak discharge-frequency relationships were developed from analyses of records at nearby gaging stations listed in Table 1 - Stream Gages. Frequency curves for the gaging stations were computed using procedures outlined in Bulletin 17B (Reference 17) including the skew map of Plate

1 and adjustments for historic flood information where available.

Tennessee River discharges and elevations in Lauderdale County were altered progressively by construction of Wilson Dam by the U.S. Army Corps of Engineers in 1924 and by the TVA reservoir system constructed from 1936 until 1944 when today's level of regulation was essentially reached. The Tennessee River study reach is along Pickwick and Wilson Reservoirs; consequently, flood elevations are influenced by both discharge and dam headwater elevations.

Discharge-frequency for the Tennessee River study reach was determined by graphical frequency analysis of the streamflow records are listed in Table 5 - Stream Gages for Discharge-Frequency Relationships.

TABLE 5 - STREAM GAGES FOR DISCHARGE-FREQUENCY RELATIONSHIPS

<u>Location</u>	<u>Gage Number</u>	<u>Mile</u>	<u>Drainage Area (Sq. Miles)</u>	<u>Period of Record</u>	<u>Agency</u>
Pickwick Landing Dam (Reference 18)	None	206.7	32,820	1945-78	TVA
Tennessee River at Florence, Alabama (Reference 19)	03589500	256.7	30,810	1938-79	USGS
Wheeler Dam (Reference 18)	None	274.9	29,590	1946-79	TVA

Elevation-frequency relationships for the Pickwick and Wilson Reservoir study reaches were determined by backwater computations throughout the entire length of each reservoir using the previously described discharge-frequency determinations. The computed elevation-frequency profiles throughout the reservoirs were adjusted to achieve compatibility and consistency with elevation-frequency curves determined from observed stage records at the locations are listed in Table 6 - Stream Gages for Elevation-Frequency Relationships.

TABLE 6 - STREAM GAGES FOR ELEVATION-FREQUENCY RELATIONSHIPS

<u>Location</u>	<u>Gage Number</u>	<u>Mile</u>	<u>Drainage Area (Sq. Miles)</u>	<u>Period of Record</u>	<u>Agency</u>
Pickwick Landing Dam Dam Headwater (Reference 20)	None	206.7	32,820	1938-79	TVA
Tennessee River at Smithsonia, Alabama (Reference 18)	None	241.5	31,350	1938-64	USGS
Tennessee River at Florence, Alabama (Reference 19)	03589500	256.7	30,810	1938-79	USGS
Wilson Dam Tailwater (Reference 18)	None	259.4	30,750	1955-79	TVA
Wilson Dam Headwater (Reference 20)	None	259.4	30,750	1946-81	TVA

Graphical frequency analysis was used for all Tennessee River frequency determinations because the standard log-Pearson III analysis is not applicable to either elevation data or regulated discharge data. The extrapolation of the frequency curves to the 500-year flood was guided by maximum flood estimates from maximum precipitation determined by the National Weather Service (Reference 21).

The discharges used in this revision are shown in Table 7, Revised Summary of Discharges.

TABLE 7 - REVISED SUMMARY OF DISCHARGES

<u>FLOODING SOURCE AND LOCATION</u>	<u>DRAINAGE AREA (SQ MILES)</u>	<u>PEAK DISCHARGE (CFS)</u>			
		<u>10-YEAR</u>	<u>50-YEAR</u>	<u>100-YEAR</u>	<u>500-YEAR</u>
SHOAL CREEK					
at mouth	495	56,000	98,000	121,000	184,000
River Mile 9.39	460	52,700	93,100	114,000	174,000
just downstream of confluence of Indiancamp Creek	457	52,500	92,700	114,000	173,000
just upstream of confluence of Indiancamp Creek	449	51,800	91,500	112,000	171,000
River Mile 11.90	447	51,600	91,200	112,000	170,000

TABLE 7 - REVISED SUMMARY OF DISCHARGES (Continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
BLUEWATER CREEK					
at mouth	140	17,000	27,000	32,000	45,000
River Mile 4.45	129	16,000	26,000	30,000	42,000
TENNESSEE RIVER					
River Mile 255.0	31,023	365,500	424,200	455,300	529,100
River Mile 256.7	30,810	362,000	419,000	450,000	524,000
River Mile 259.4	30,750	361,000	417,500	447,800	520,800

The HEC-2 step-backwater computer program (Reference 22) was used to determine water-surface elevations. The HEC-2 model for Shoal Creek was extended downstream to River Mile 0.16 in 1984 by the TVA for a Wilson Reservoir flood study. Additional cross sections were field surveyed in 1984. The HEC-2 model for Indiancamp Creek was not revised.

Starting water-surface elevations for Shoal Creek and Bluewater Creek were based on Wilson Reservoir headwater elevation records. Roughness coefficients (Manning's "n") for Shoal Creek ranged from 0.02 to 0.03 in the channel and from 0.06 to 0.15 in the overbanks. For Bluewater Creek, "n" values ranged from 0.03 to 0.04 in the channel and from 0.05 to 0.12 in the overbanks.

The zone designations for Shoal Creek, Indiancamp Creek, Bluewater Creek, and the Tennessee River were revised and are shown in Table 4, Flood Insurance Zone Data. The flood profiles were also revised for Shoal Creek, Indiancamp Creek, Bluewater Creek, and the Tennessee River. The flood-frequency profile changes on Indiancamp Creek are the result of revised backwater elevations from Shoal Creek. Flood boundaries were delineated using topographic maps at a scale of 1:24000, some of which were enlarged to a scale of 1:4800, with a contour interval of 10 feet (Reference 23).

d. Floodways

Floodway computations for Shoal Creek and Bluewater Creek were revised as a result of new hydraulic analyses performed by the TVA. The floodways for this study were designed for optimum benefit to the community. Floodway analyses were based on equal conveyance reduction and adjusted as necessary to account for the effects of existing development and to provide functional and

manageable floodways. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was revised and are presented in Table 3, Floodway Data.

e. Flood Insurance Zones

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A18

Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods, base flood elevations shown, and zones subdivided according to Flood Hazard Factors.

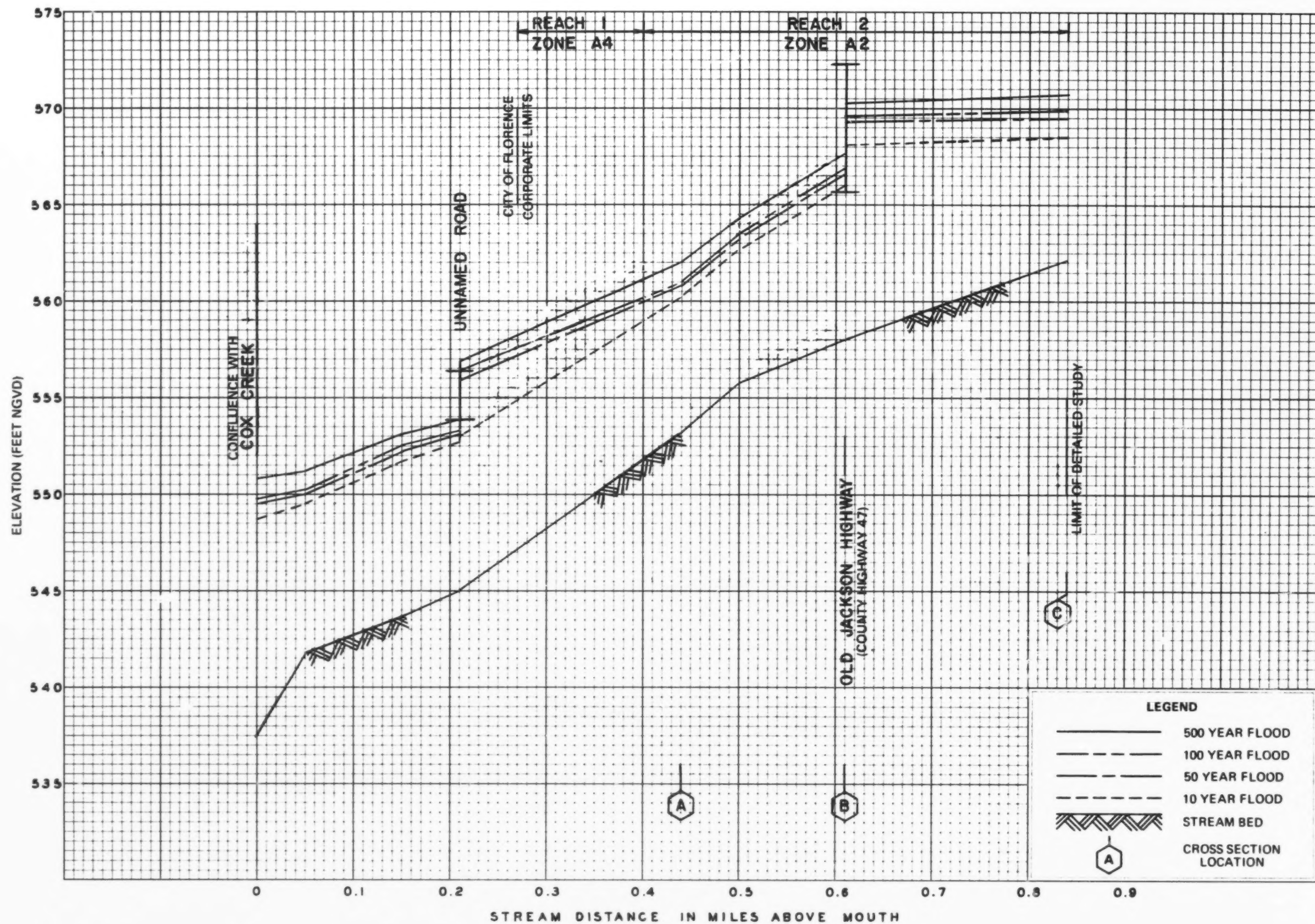
f. Other Studies

The Flood Insurance Study for the City of Florence, Alabama (Reference 24) does not agree with this revised study. The revised hydraulic analyses for the Tennessee River used in this revision supersede the information shown on the Flood Insurance Rate Map for Florence, Alabama. If the Flood Insurance Study for the City of Florence is to be revised, it will be made to agree with this study. The Flood Insurance Study for the unincorporated areas of Colbert County, Alabama (Reference 25) does not agree with this revised study along the Tennessee River. Colbert County, Alabama will be revised to agree with this revised study.

g. References and Bibliography

17. U.S. Department of the Interior, Geological Survey, Interagency Advisory Committee on Water Data, Office of Water Data Coordination, Hydrology Subcommittee, Bulletin No. 17B, Guidelines for Determining Flood Flow Frequency, September 1981.
18. Files of the Tennessee Valley Authority, Flood Protection, Water Resources Operations Department.
19. U.S. Geological Survey, Water Resources Data for Tennessee, Annual Water Supply Paper Reports, Water Years 1938-1979.
20. Tennessee Valley Authority, Operation of TVA Reservoirs, Division of Water Management, River Management Branch, Annual Reports, 1938-1981.

21. U.S. Department of Commerce, Weather Bureau, Hydrometeorological Report No. 41, Probable Maximum and TVA Precipitation over the Tennessee River Basin Above Chattanooga, June 1965.
22. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles. Computer Program, Davis, California, November 1976, updated April 1980.
23. U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24000, Contour Interval 10 Feet: Pruittton, Alabama, 1952, revised 1972; Killen, Alabama, 1971; Florence, Alabama, 1971; Wheeler Dam, 1971.
24. Federal Emergency Management Agency, Flood Insurance Study, City of Florence, Lauderdale County, Alabama, July 1981.
25. ———, Federal Insurance Administration, Flood Insurance Study, Colbert County, Unincorporated Areas, Alabama, December 1980.



FLOOD PROFILES

WILSON CREEK

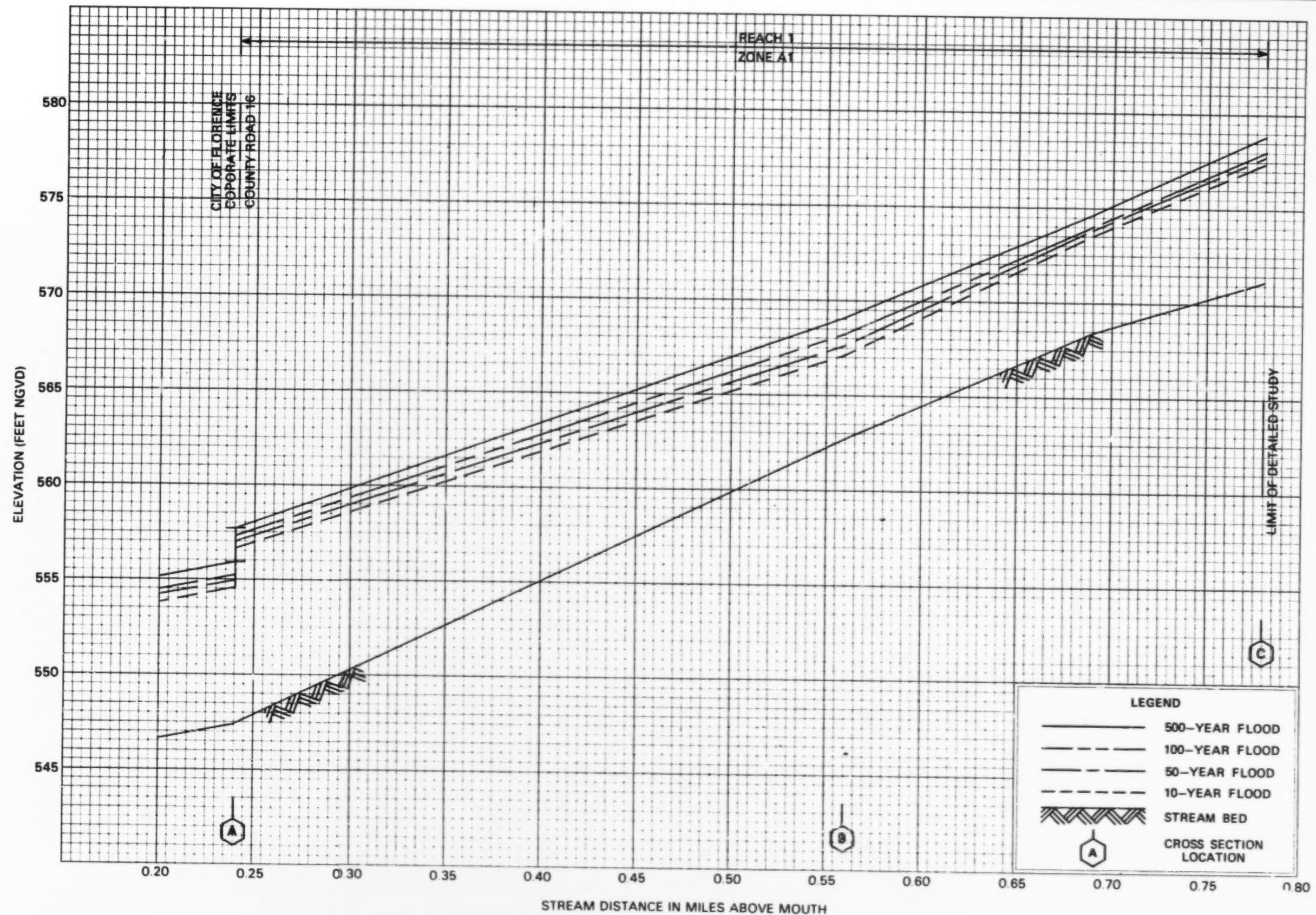
FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL

(UNINCORPORATED AREAS)

01P

31



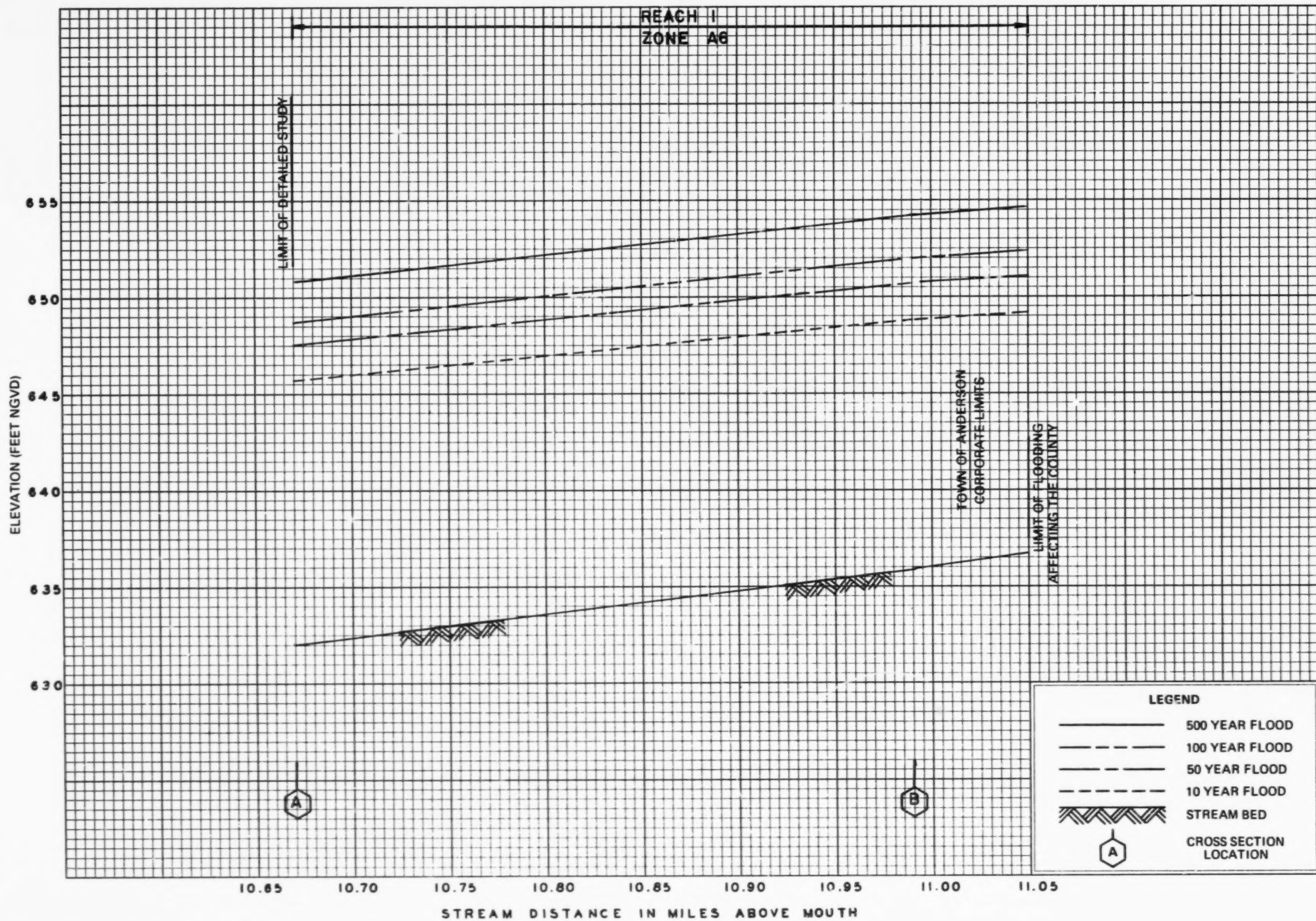
FLOOD PROFILES

HUDSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

02P



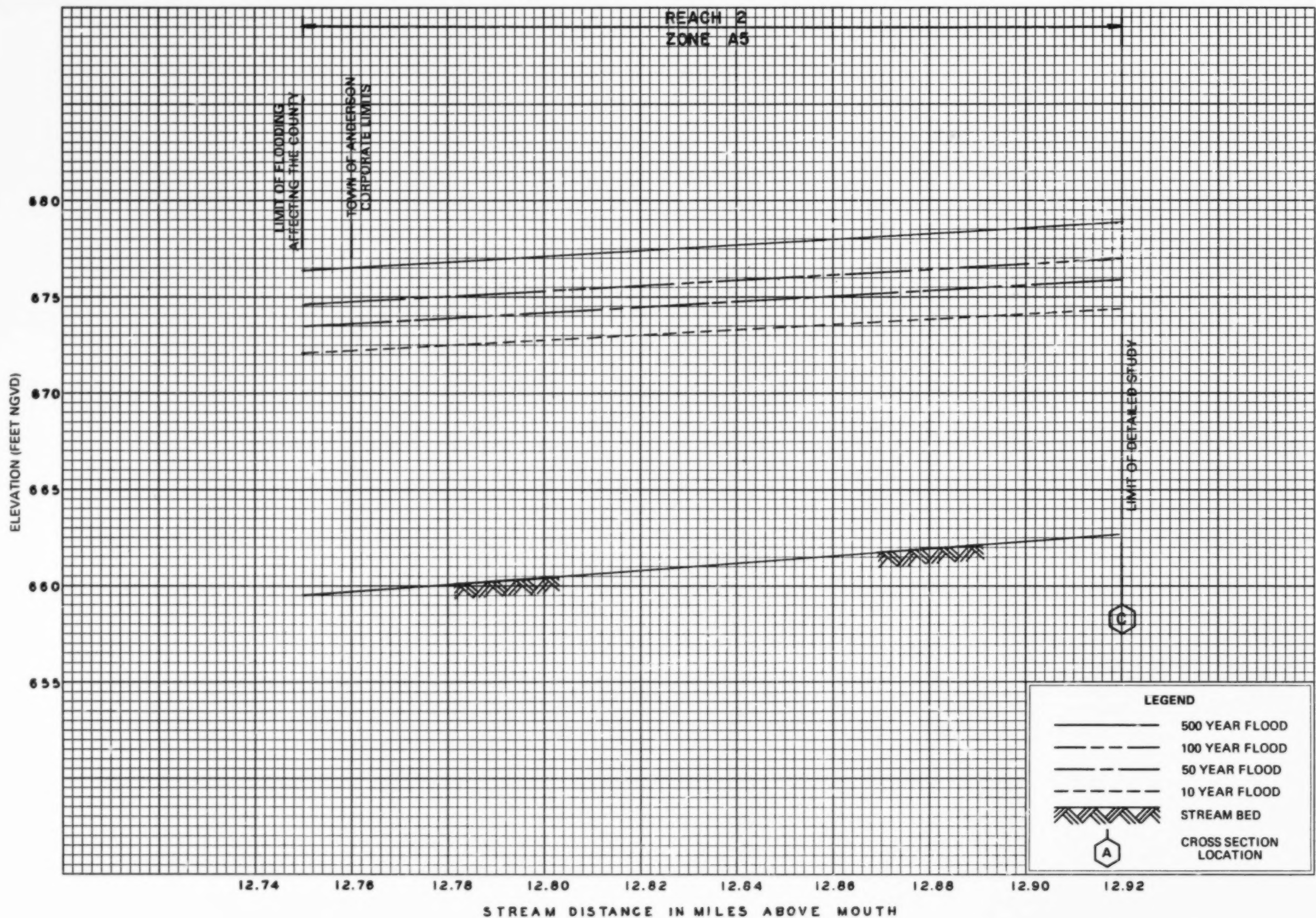
FLOOD PROFILES

ANDERSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

03P



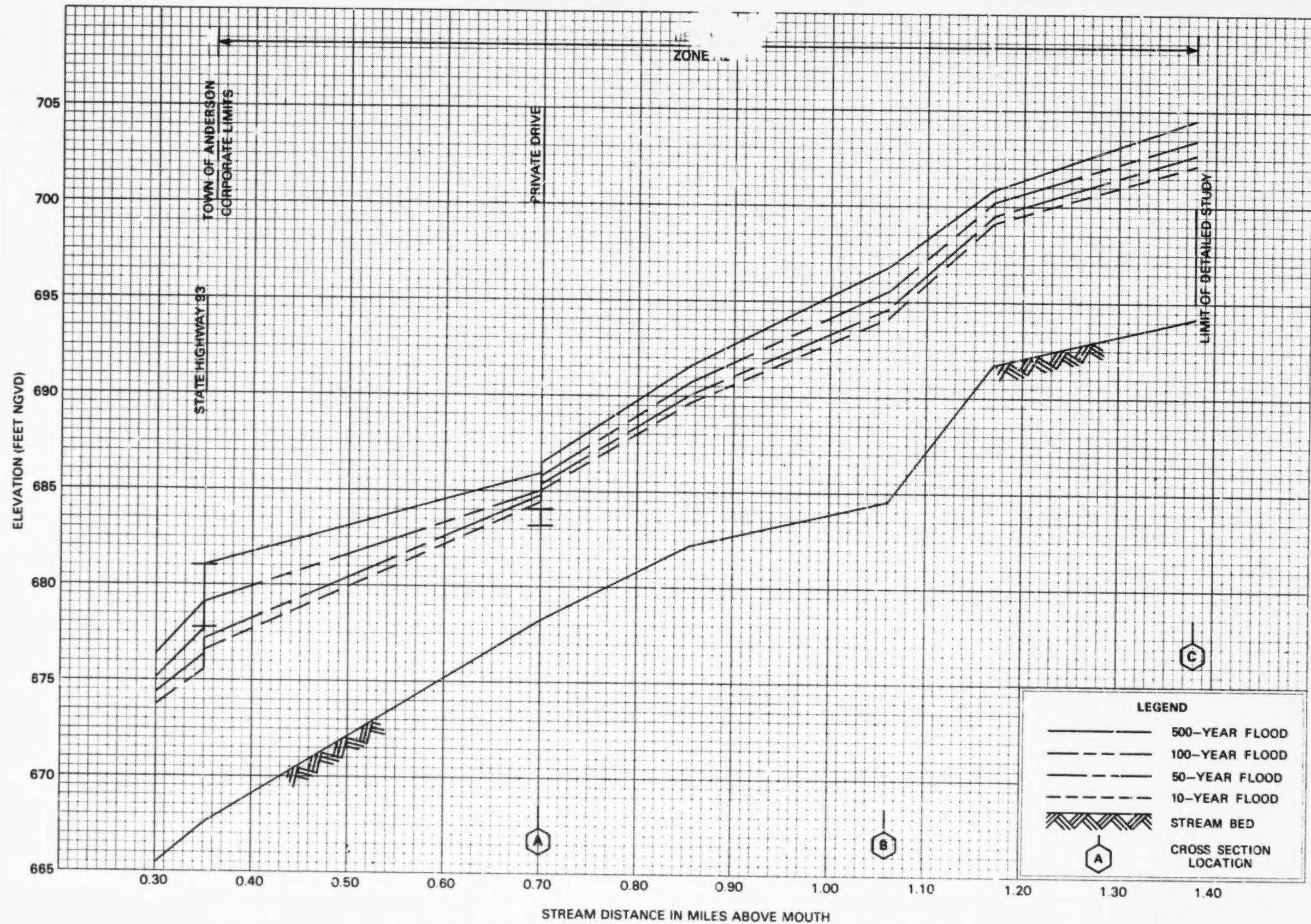
FLOOD PROFILES

ANDERSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

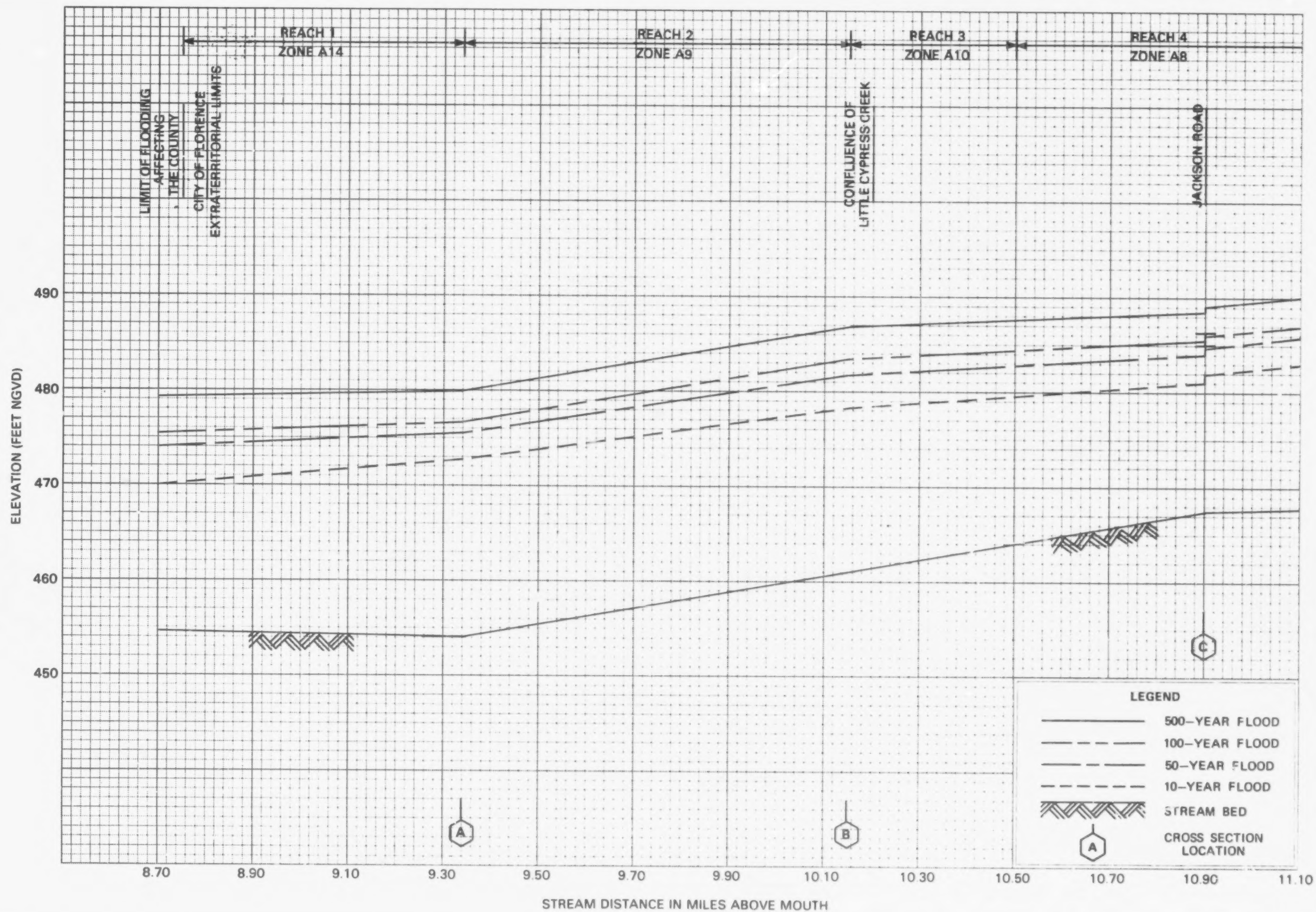
LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

04P



FLOOD PROFILES
EAST FORK ANDERSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)



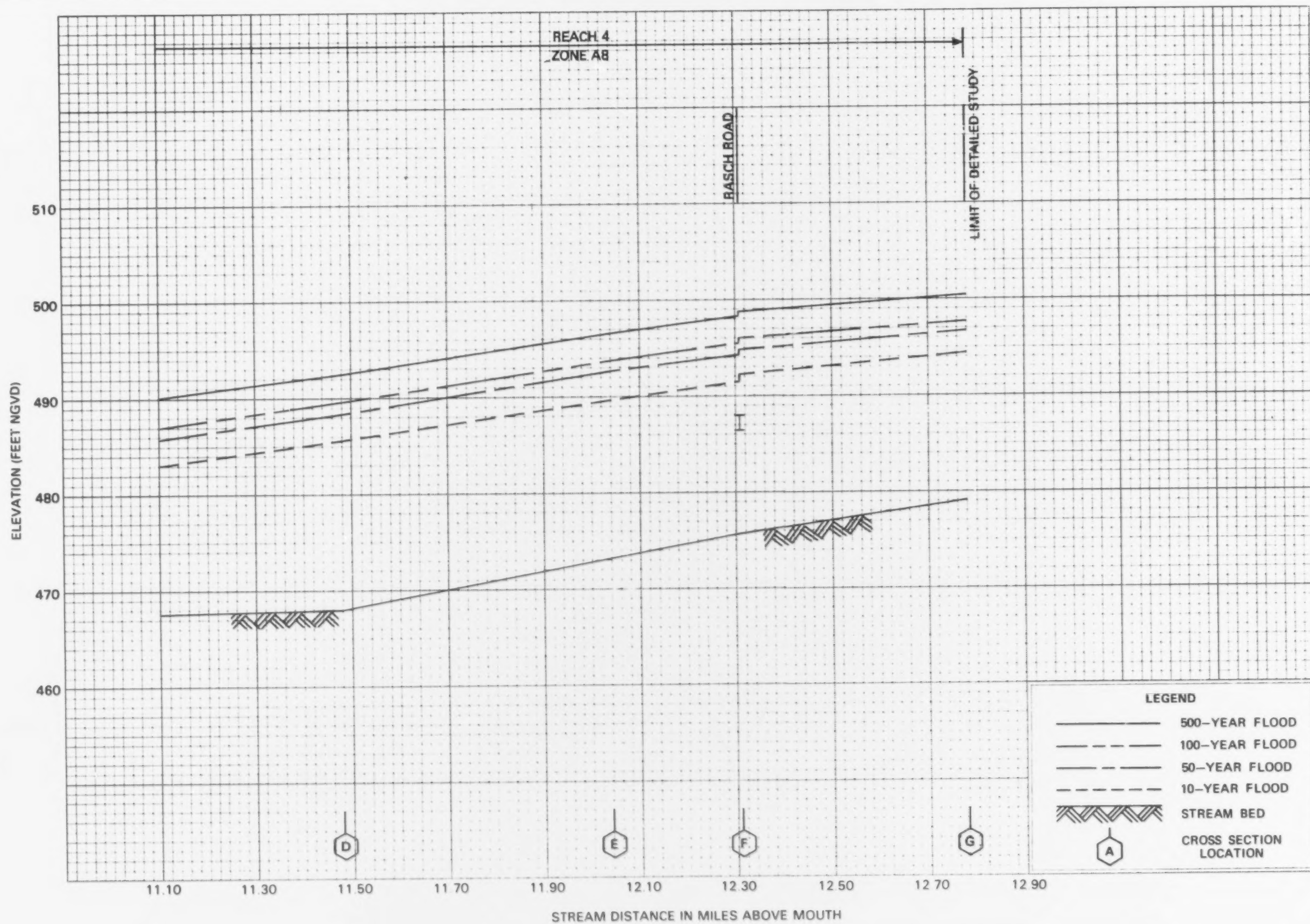
FLOOD PROFILES

CYPRESS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

06P



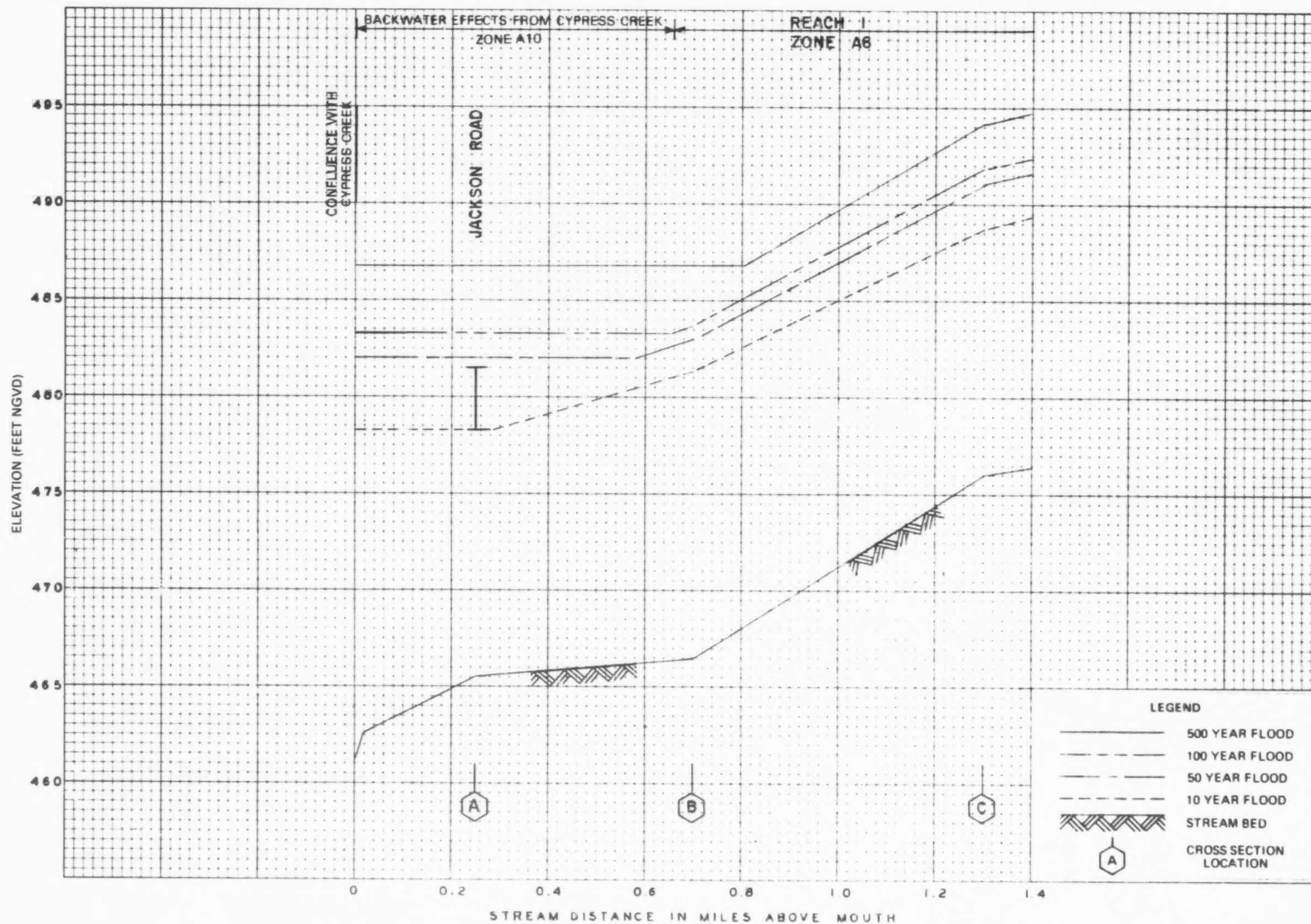
FLOOD PROFILES

CYPRESS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

07P



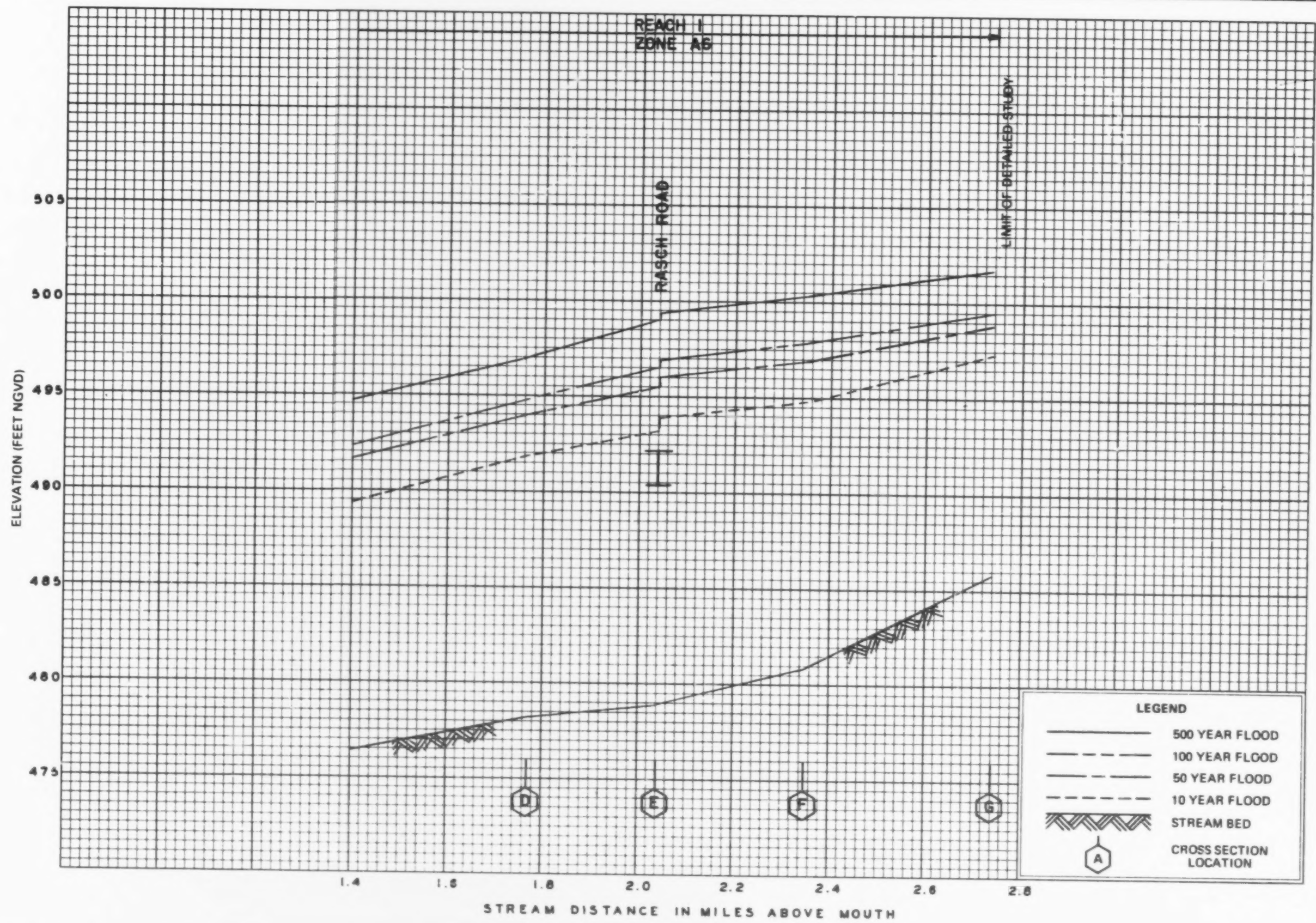
FLOOD PROFILES

LITTLE CYPRESS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

08P



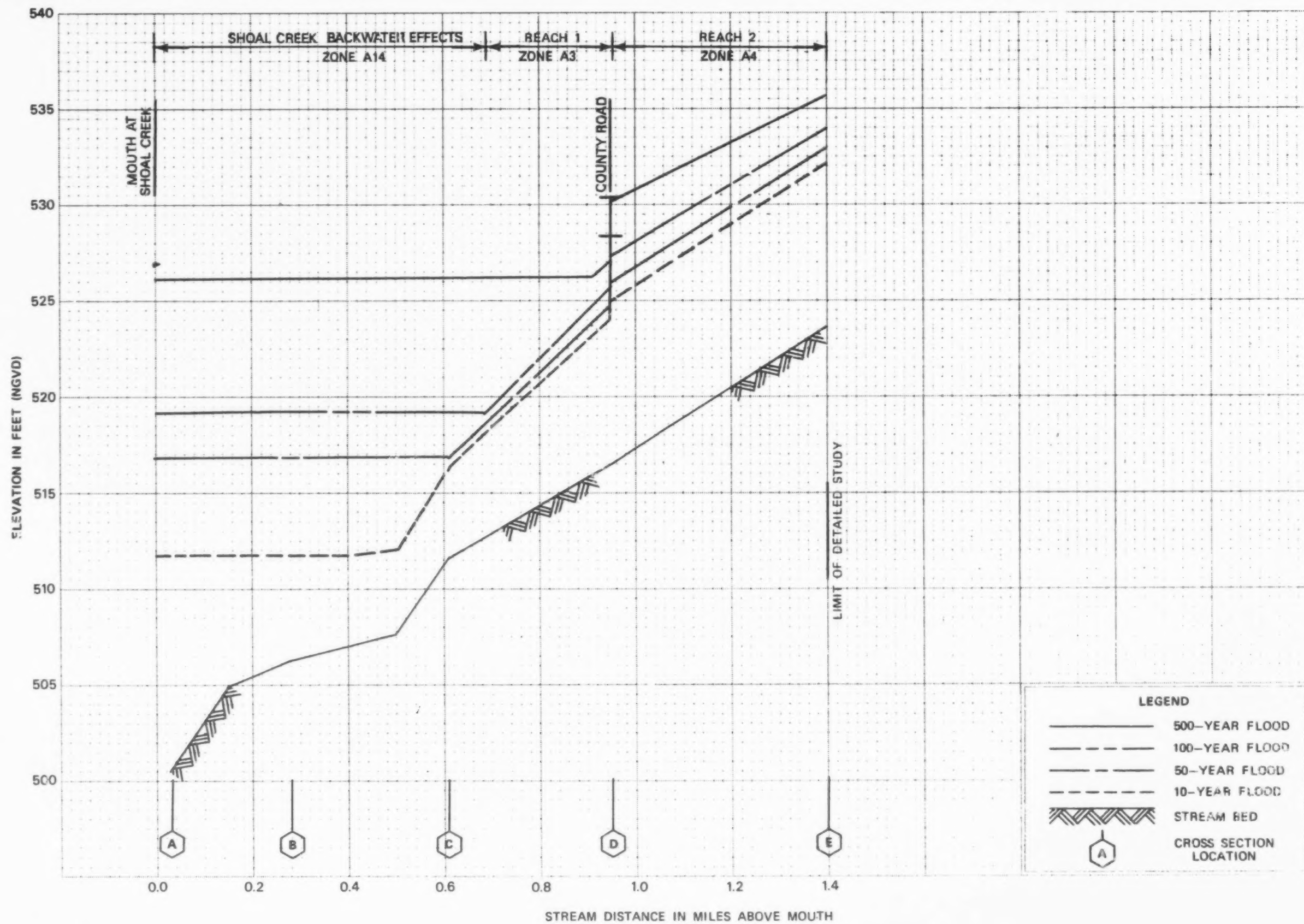
FLOOD PROFILES

LITTLE CYPRESS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL

(UNINCORPORATED AREAS)



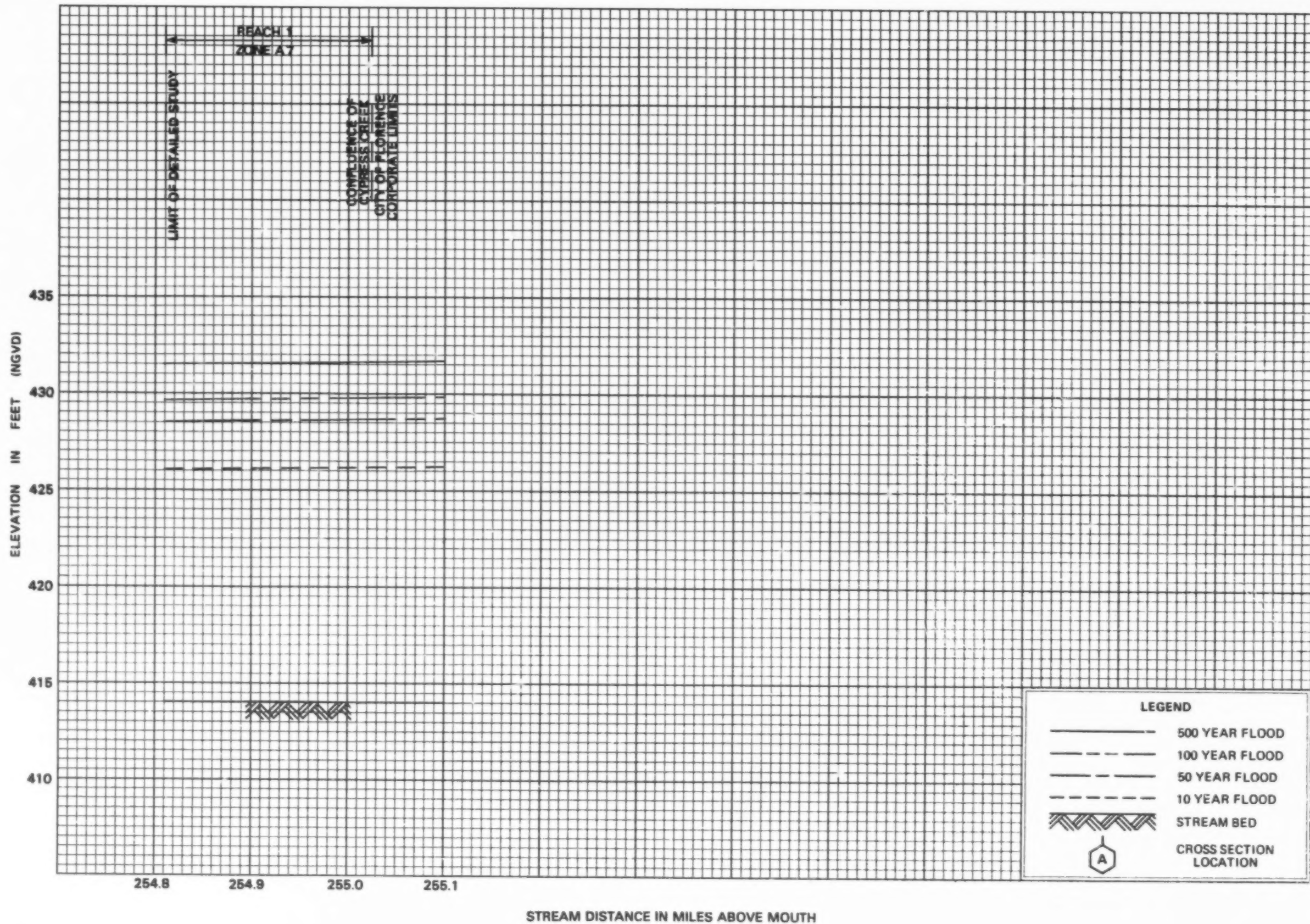
FLOOD PROFILES

INDIANCAMP CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
 (UNINCORPORATED AREAS)

10P

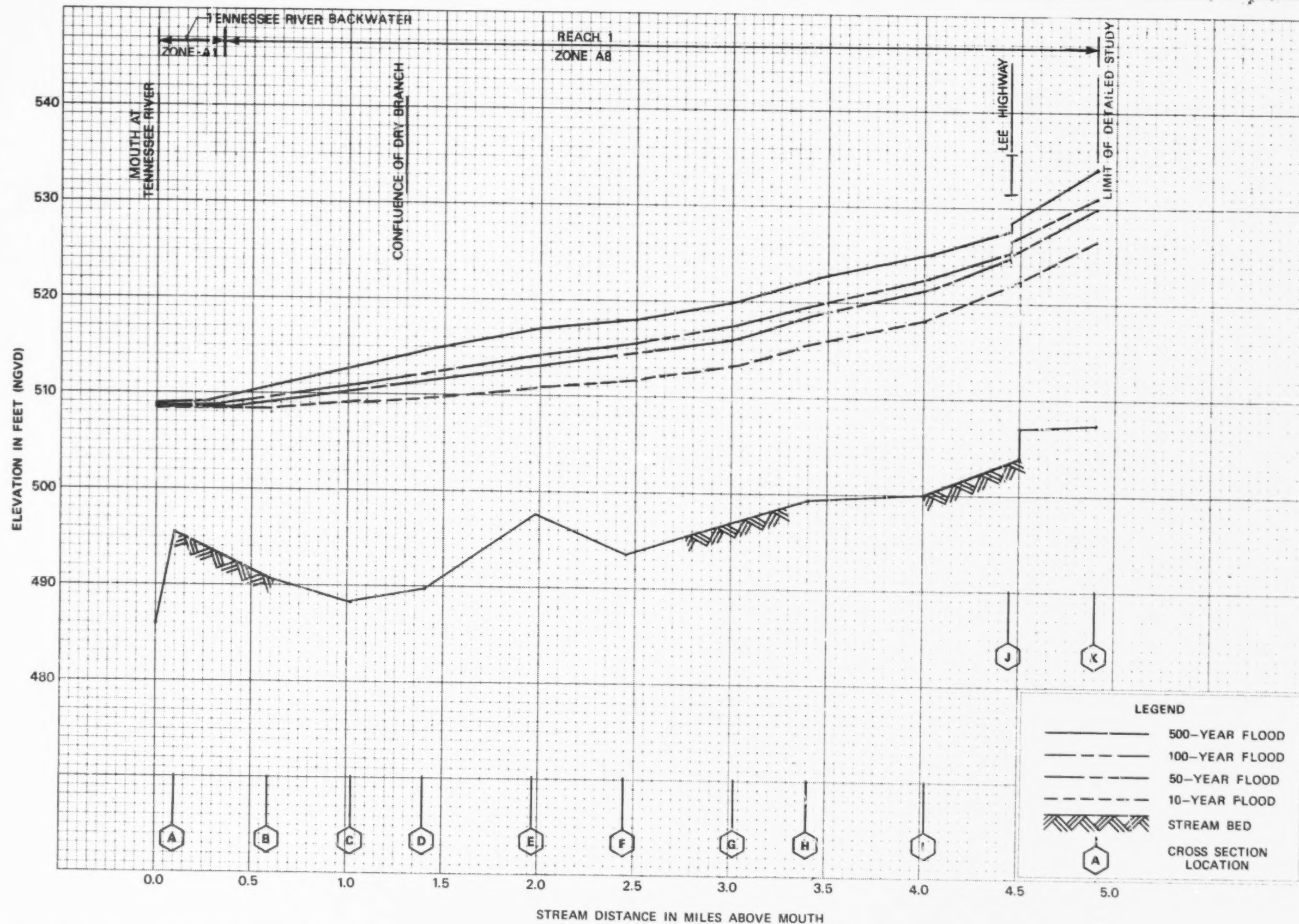


FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOOD PROFILES

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

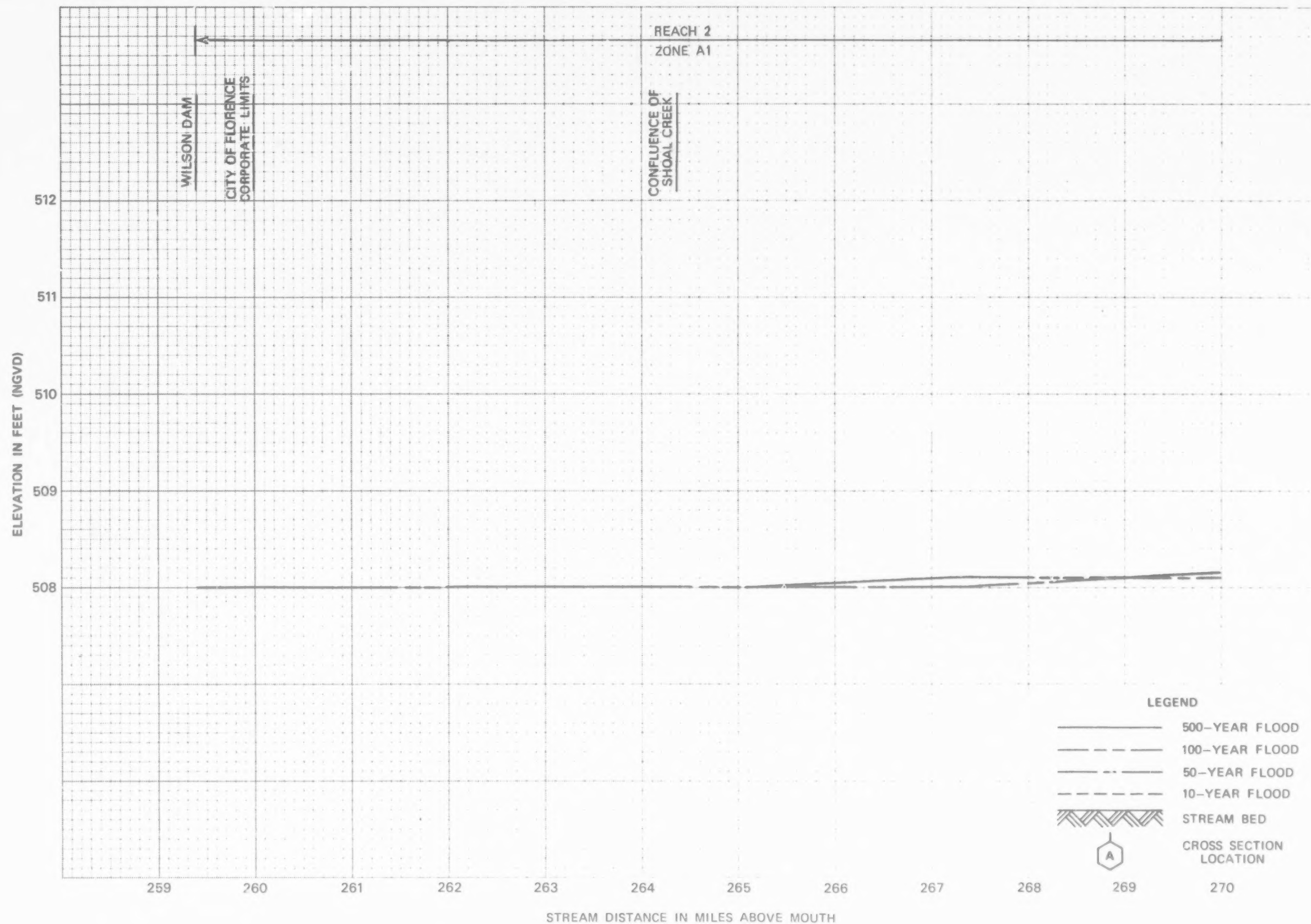
TENNESSEE RIVER (PICKWICK LAKE)



FLOOD PROFILES
BLUEWATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

42



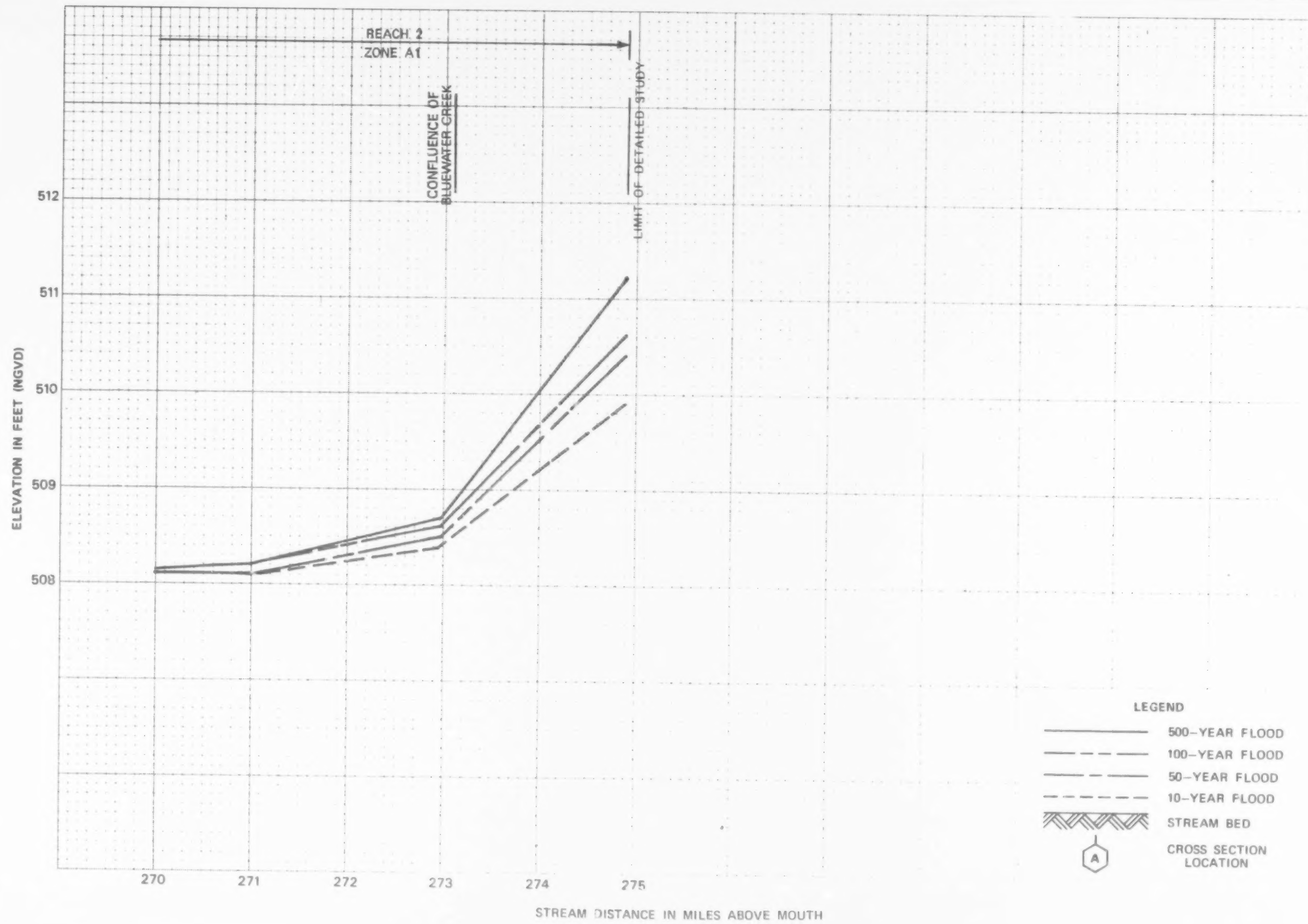
FLOOD PROFILES

TENNESSEE RIVER (WILSON LAKE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL

(UNINCORPORATED AREAS)

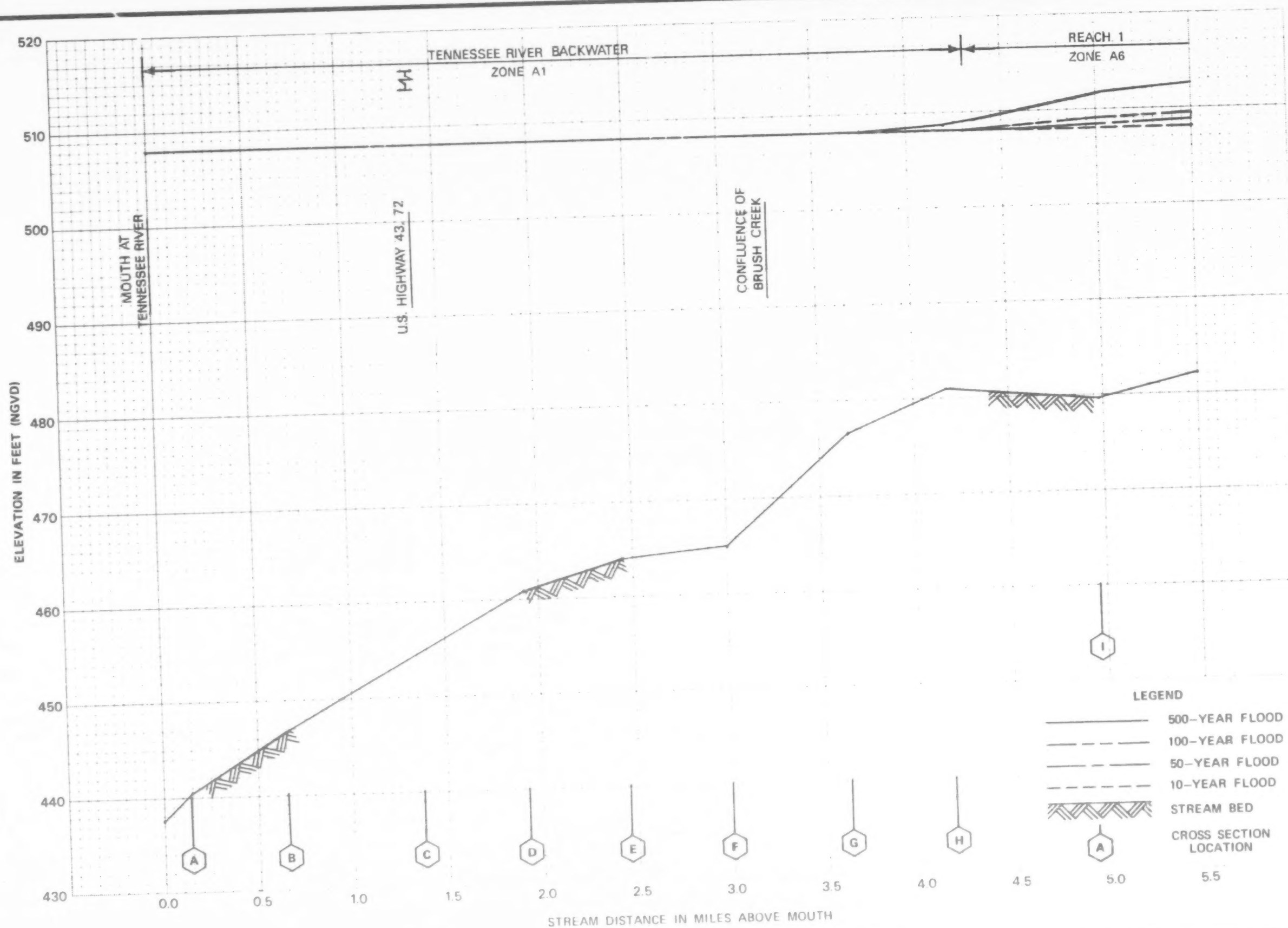


FLOOD PROFILES

TENNESSEE RIVER (WILSON LAKE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

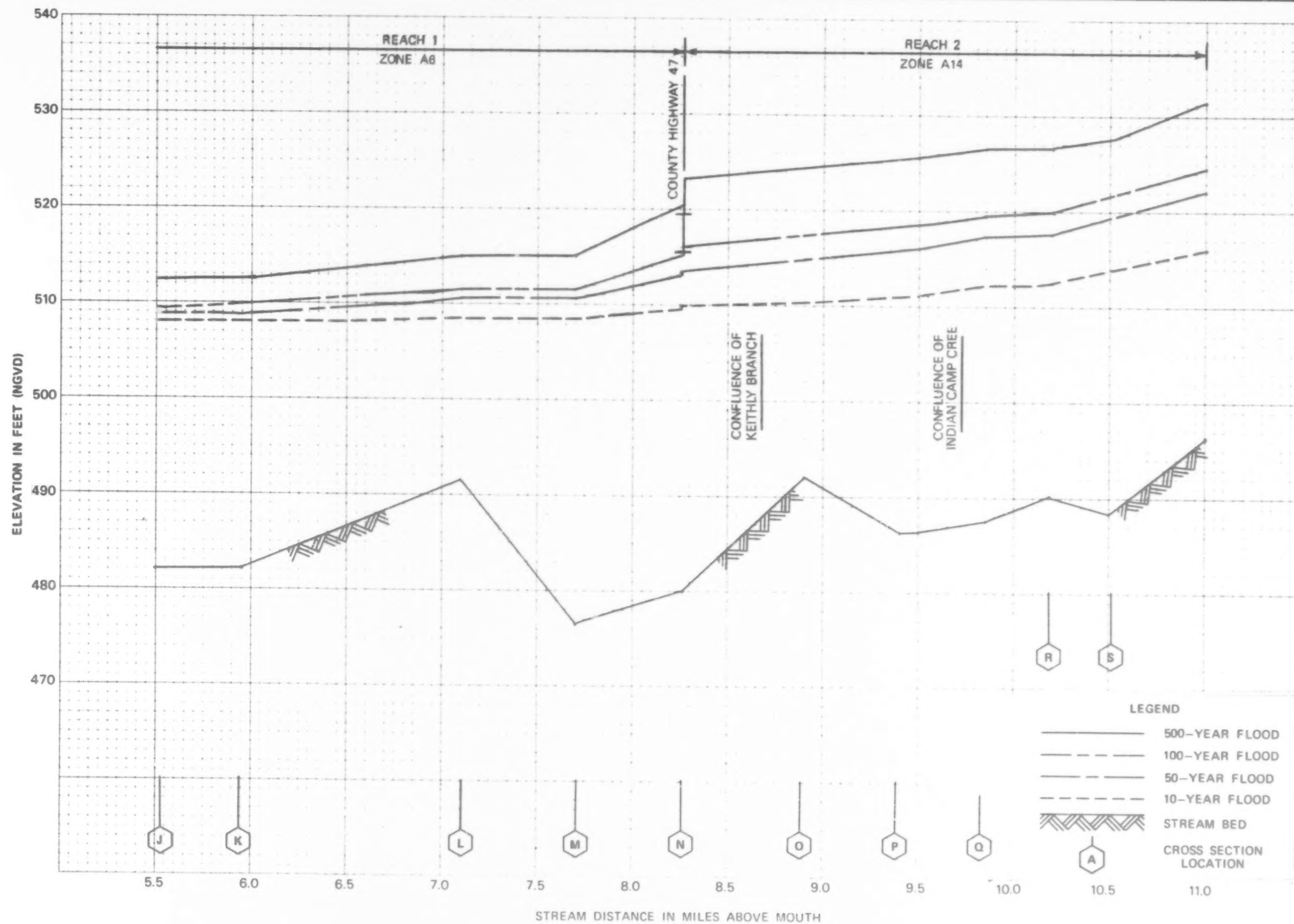


FLOOD PROFILES

SHOAL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)



FLOOD PROFILES

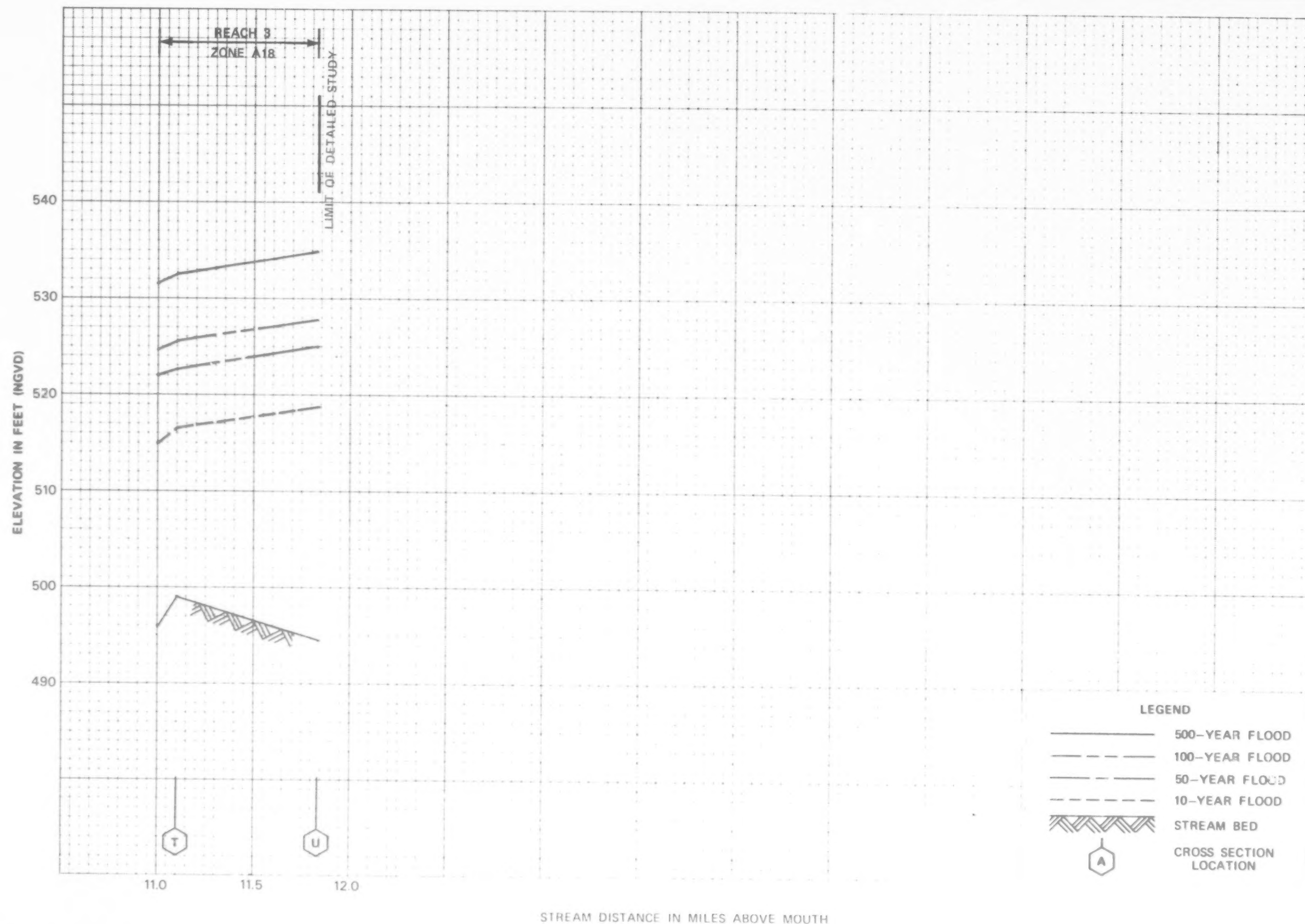
SHOAL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

16P

REVISED 3 18 91



FLOOD PROFILES

SHOAL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAUDERDALE COUNTY, AL
(UNINCORPORATED AREAS)

17P

REVISED 3 18 91